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Fishes in the Water Pipes.

It must be very astonishing to the little fishes of Lake Cochituate to find themselves suddenly hurried by an impetuous current into a dark pipe, and driven by the force of the water through its various ramifications, until at length they are brought up, closely wedged in a narrow tube, or are shot out of a faucet with the force of a Minié bullet from a rifle. This is very often the case.—The *Traveler* says, that the remains of a good sized shiner paid a visit through the pipes to a house in Fourth street, South Boston, on Tuesday afternoon, and another shiner in a perfect state of preservation, and almost big enough to eat, being four inches long, passed through a pipe into a watering trough in a stable.—[Boston Journal.

[These afford strong evidence of more than vegetable matters being contained in the Cochituate water.

The Mississippi Spanned.

The Mineapolis suspension bridge across the Mississippi river, above the falls of St. Anthony, has at length been completed, and the waters of the mighty river are spanned for the first time by a structure of iron and wood. The last floor beam of the bridge was laid upon the 5th ult., and the occasion was one of pride and rejoicing to the inhabitants on the different banks of the stream. The dimensions of the bridge are as follows: The length of span is 620 feet; vertical deflection of cables, 47 feet, which are four in number, and each composed of 500 strands of No. 10 charcoal-iron wire. The width of the platform, inside of parapets, is 17 feet; distance between suspending rods, 3 feet 9 inches.

Unhealthy Plastering.

A communication in the New York *Journal of Commerce* asserts that the hair used in plaster for new houses is, very frequently, so dirty as to emit unpleasant effluvia, which is quite sickening, and calculated to keep a room unhealthy for years afterwards. The writer says:—

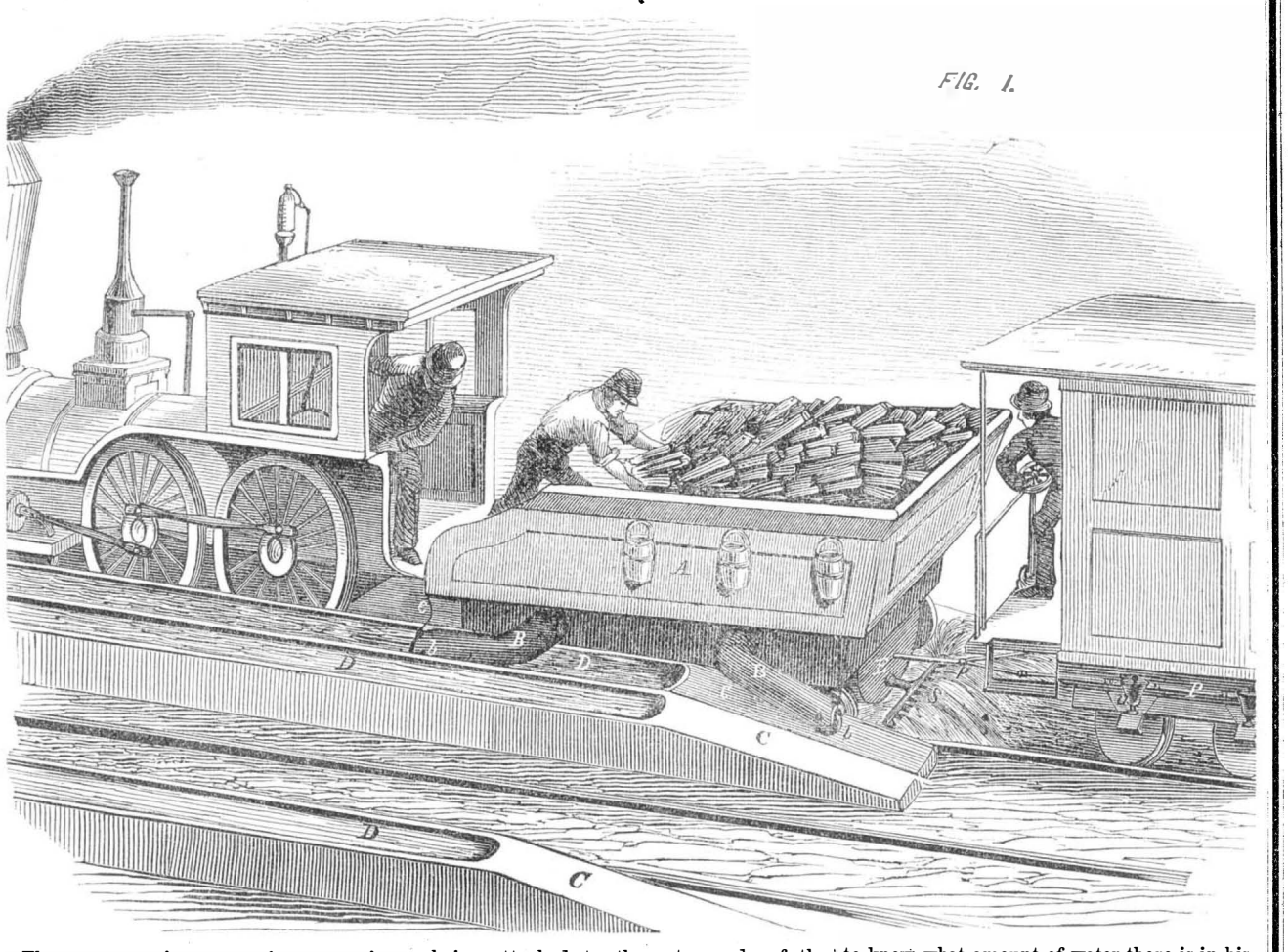
"Hair used for mixing in mortar should be thoroughly washed—re-washed, and dried, and thus deprived of the putrid matter that often adheres to it. The lime in mortar is not sufficient to cleanse the hair. It will generate an unpleasant sickly effluvia whenever the room is heated, until, after a long time, the mortar is converted into nitrate of lime, or so much of it as is mixed with the animal matter, incorporated in the mortar."

Portrait Gallery of Inventors.

Prince Albert has suggested to the Society of Arts, of which he is President, the desirability of forming a gallery of a series of authentic portraits of distinguished inventors, either in art or science. The intention is, to transmit the likenesses of ingenious individuals down to posterity, thereby furnishing a source of encouragement to them while living. A sensible fellow that Prince Albert.

McDONALD'S PATENT MODE OF SUPPLYING WATER TO LOCOMOTIVES.

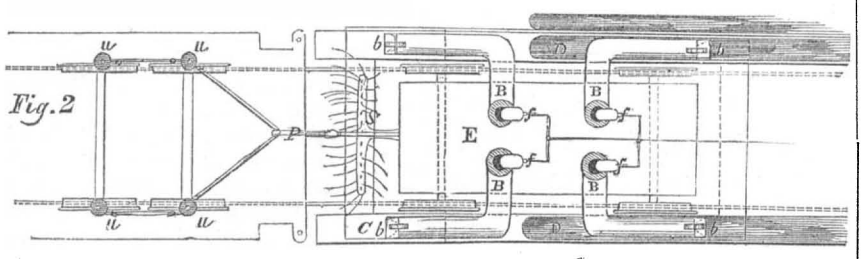
FIG. 1.



The accompanying engravings are views of a new method of supplying locomotives with water, while they are running at full speed, without the employment of pumps. A patent was granted for the invention to Angus W. McDonald, of New Creek Depot, Va., on the 28th of last November.

Figure 1 is a perspective view, and figure 2 is a top view of a horizontal section. The same letters refer to like parts.

A is the "tender" of the engine with its water tank, E; B B are two pipes with open mouths secured in swivel water-tight joints in the tank, E. There are two of these pipes on each side, to take in the water from troughs on either side of the track, and when moving in both directions; *e e* are cords or chains attached to the outer ends of the pipes, B, to elevate their nozzles when desired, by the stoker; *b* is a small anti-friction roller placed on the lower side of the end of each pipe, B; D represents a long water trough placed on the side of the track, with a division board having openings below, so that there is free communication between them; C is an inclined plane on the end of the trough up which the pipe, B, on its roller, *b*, runs without producing any jar, and then dips into the trough. The velocity and force of the pipe, B, passing through the trough when the train is running, is to drive the water up through said pipe, and force it into tank E, thus replenishing it without using a pump, and without stopping the engine. Troughs of this kind are placed at proper distances along the line of railroad, and are kept constantly filled with water. When the tank is full, the ends of the pipes, B, are turned up by the cord or chains, *b b*, or light hung valves opening like *f f*, may be placed in these pipes. By having a great number of these troughs on a line of railway, water may be freely used, both for sprinkling the track in dry weather to keep down the dust, and cooling the axle boxes, as shown by the perforated or rose pipe, S, for this purpose, and the pipe, P, leading from the tank to the axle boxes, *u u*. The water tank is made of boiler iron, like those in common use, and is of a cylindrical form. A screw tap may be secured on its bottom, or on its side, so that water, if required, can be pumped from a cistern by the engine, by simply coupling a suction hose on the tap of the tank, and letting it down into the cistern. The tank may also have a top valve upon it, and it may be connected with the boiler by a steam pipe, so that by letting down a suction pipe into a cistern (when there are valves on the pipes, B) and blowing steam through the tank, then closing the top valve and shutting off the steam, a vacuum will be formed inside, and the water will flow up by atmospheric pressure into the tank. The great object of the invention, however, is to supply the tank copiously with water, while the train is in motion, so as to lose no time in obtaining water, and allow a great quantity of water to be used for the purposes named, as well as supplying the boiler. The length of the trough for supplying water must correspond to the size or openings of the pipes, B, and the supply required. A glass water gauge will enable the engineer to know what amount of water there is in his tank.



It has been objected to this method of supplying locomotives with water, that the pipe, B, will drive the water out of the trough, but as there is free entrance for the water through the pipe into the tank, and as there is but little resistance offered to the water in passing backwards, it is believed that this will not form an insuperable difficulty to its operation. The invention is of a very novel character, and if it operates well in practice—the only way of testing its qualities—it will prove of immense advantage to all our railroads, as numerous supply tanks can be erected on every line of railway in our country, and all these supplied with rain water, which deposits no crust in boilers, and is therefore the best which can be used. This invention can be applied to the tanks of common tenders, so that they may be used until they are worn out, by simply adding the tubes, B, and the other connections.

The claims of this invention are five in number, and embrace both the supply trough and the tank, so as to cover the methods described in the patent for supplying locomotive tenders with water. These claims will be found on page 102, this volume, SCIENTIFIC AMERICAN, and more information may be obtained by letter addressed to Mr. McDonald, at his place of residence.

Soda as an Absorbent

The St. Louis *Medical and Surgical Journal* relates several cases in which soda has been successfully employed as a remedy for snake bites and the sting of poisonous insects. The injured part was bathed in warm water, then the soda—moistened a little with water before being used—was applied to the wound.

A special Committee of the Senate, of which Mr. Mallory is Chairman, has again recommended an appropriation for testing the qualities of Richardson's Atmospheric Telegraph, which was illustrated on page 265, Vol. 8, SCIENTIFIC AMERICAN.

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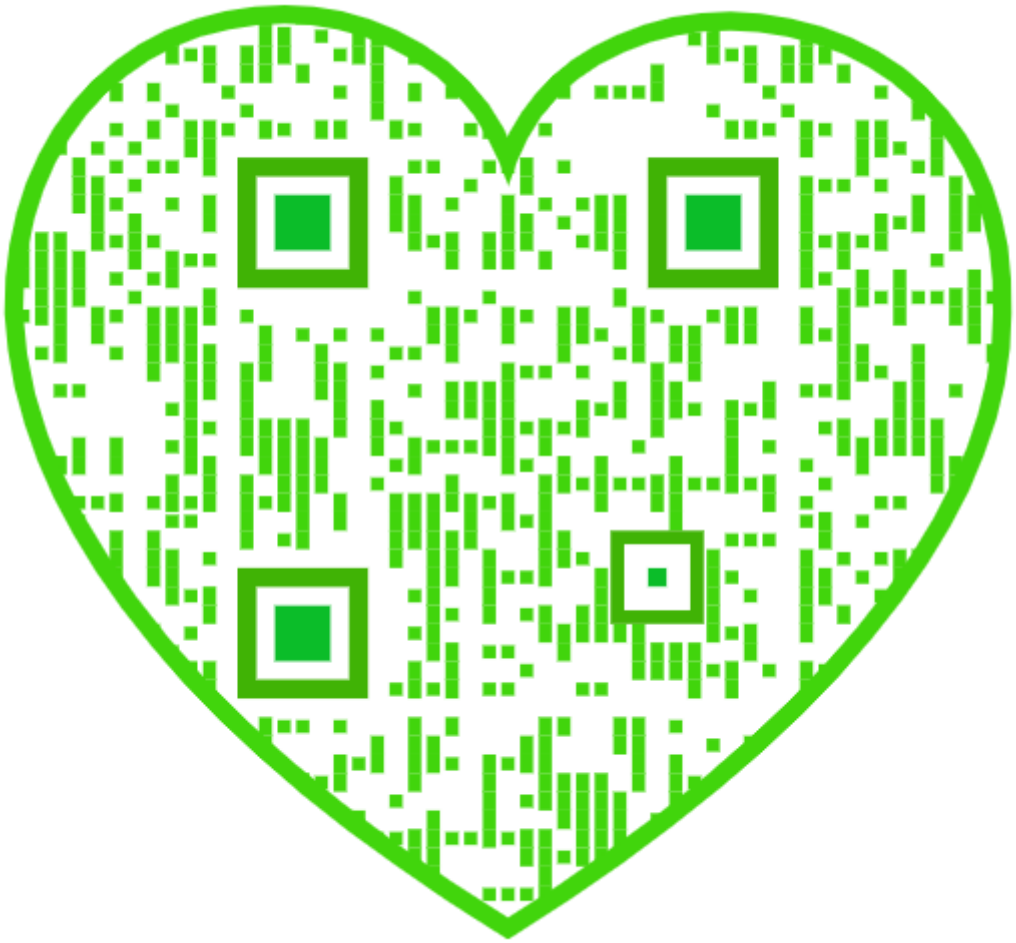

The Art of Dyeing—No. 3.

RED COLOR ON COTTON—This color is termed the "calorific ray," and imparts a cheerful aspect to rooms looking to the north. It is a striking and gaudy color, by some called vulgar, but it is wrong to apply such a term to any color.

A common red color is dyed on cotton, with two different kinds of vegetable dyewoods, namely, peachwood and barwood. The latter makes a more permanent color than the former. The cotton being boiled and prepared for operation, is first steeped for about eight or ten hours in a strong decoction of sumac—about three pounds to the ten pounds of cotton, either in yarn or the piece. The goods must never be crowded too close in the vessels in which they are steeped, and no part of them should be suffered to rise above the liquor. This preparation is the same for both kinds of dyewoods. After the goods are lifted out of the sumac (if yarn, they are wrung, if pieces, they are suffered to drip well,) and then entered into the "spirit tub." This is a standing tub of the nitro muriate of tin, described on page 130; in which they receive five turns or handlings, and are then sunk under the liquor for about one hour and a half. They are then lifted, suffered to drip for a few minutes, wrung (if yarn,) and afterwards washed in clean water. If for bar-wood, great care must be exercised that no free acid is left in them; this can easily be detected by tasting them—the usual way. It requires about one pound of bar-wood to color one pound of cotton, and this is always done in a boiler bath. The yarn is wrung up, when washed out of the spirits, or if pieces, they are well dripped and run upon a winch. The bath should be a long rectangular copper kettle for yarn, if heated with a fire underneath, or it should be a water-tight long wooden box if heated with steam. The bar-wood is first introduced, and allowed to boil for about fifteen minutes, then it is put off the boil with a pailfull of cold water, and the goods are entered and handled well over pins, or the winch, for about a quarter of an hour, when the liquor is brought to the boil and kept boiling for half an hour, when the goods will have attained to a good full color. Some enter the goods into the bar-wood liquor when cold, and bring it gradually up to the boil in half an hour, and keep it at this heat for half an hour longer. If the goods are to be dyed with peach wood, about six pounds are used for every ten of the goods. This wood is simply boiled for about fifteen minutes (if finely ground,) then put off the boil, and the clear liquor lifted out into a tub or tubs and equally divided for the quantity of goods to be dyed. The goods are then entered and handled quickly for fifteen minutes, then lifted, and about a small tea cupfull of spirits from the standing tub is added to the liquor, and well stirred. The goods are then re-entered, handled for ten minutes, and being raised, as it is termed, are then lifted, washed, and wrung for drying. Bar-wood reds require much washing if the goods are boiled in the liquor; peach-wood reds require but little washing. Some add two pounds of cam-wood to every eight of bar-wood, but use so much less of the latter dye wood.—Unless the bar-wood is good, and it is easy to deceive the eye with its appearance, a good full color cannot be produced.

Madder is employed for dyeing two kinds of reds on cotton, one a dull brownish red called "Indian," and another the most brilliant of all, "named Turkey red." The former is dyed by preparing cotton with a very light sumac, one pound to ten of cotton in yarn, in the same way as for bar-wood red; then giving it a strong mordant of the acetate of alum. This latter is prepared by dissolving one pound of alum for every ten pounds of cotton, to be dyed in a clean vessel, then adding, in a dissolved state, one ounce of the acetate of lead, stirring all up, and allowing the sediment to fall to the bottom. The clear is then used as a mordant, at a temperature of 160°. The goods are handled in this for about ten minutes, then sunk under the liquor for six hours, after which they are lifted, dripped, and washed thoroughly. They are then fit to receive the madder dye. This is done in a copper kettle gradually brought up to a boil, and then boiled for half an hour. It takes about 1½ pounds of ground madder roots to dye one pound of cotton (a little sumac is added to the madder). This is an expensive color but very fast. No Turkey reds are dyed in our country; the process is tedious and expensive, and it would perhaps be a waste of space to describe it. A description of the process is to be found in Dr. Ure's old Chemical Dictionary, furnished by M. Papillon, the French gentleman who introduced the art into Britain, but the whole details of the process, as now practiced by the best Turkey-red dyers, is totally different, and the manipulations are much reduced in number.

Madder is the best vegetable coloring matter yet discovered for dyeing red, and were it more generally cultivated in our country, so as to reduce its price, and were the advice of Mr. Partridge, as given in former numbers of the SCIENTIFIC AMERICAN, followed, our country might soon rival, if not surpass, all others in dyeing red colors on cotton. As it is, Scotland supplies us with Turkey red yarn and plain red pieces, and France (if we are not imposed upon,) with Turkey red calicoes. Speaking correctly, Turkey-red is the only pure red dyed on cotton, all the other reds—bar-wood and peach-wood—are dull and brownish when compared with it.

Alizarin is the red coloring matter of madder. Garancine is a product of madder, obtained by submitting it (the madder) for a short time to strong sulphuric acid, washing the latter well out, and then drying the madder so treated for market. Alum is the mordant used for this substance, which only yields its color at a boiling temperature. A little sumac is added in the bath, and the process is about the same as for Indian madder red. We believe its use is confined to calico print works entirely. It gives a more lively color than common madder, and it is not so liable to run upon the white parts of calicoes. Colorine is another product of madder, now extensively used in French calico printworks.

Brazil wood and sapan wood are used for dyeing red in the same manner as peach-wood (Nicaragua). They are finer in quality, and superior, but not so much used because they are dearer. None of them stand exposure to the sun for any length of time, hence they are set down as fugitive colors.

In our next we will describe the modes of coloring silk and wool, red.

Fessel's Gyroscope.

At a late meeting of the Institution of Mechanical Engineers, Mr. C. William Siemens, of London, exhibited a new instrument, the invention of Fessel, of Cologne, by which the stability of the axis of rotation in a revolving body was illustrated in an ingenious and striking manner. The instrument, named a gyroscope, consisted of a small fly-wheel revolving in a frame, attached by gimbal joints at the end of a supporting rod, which was left free to move in any direction, by passing through a ball and socket-joint fixed upon a center pillar. When the fly-wheel was made to rotate rapidly (by means of a string wound on its axis,) in a plane transverse to the supporting rod, but inclined at any angle to it, the fly-wheel maintained itself in whatever inclination it might be placed, although its weight was *unbalanced*; but at the same time the whole apparatus revolved slowly in a horizontal plane, by turning the central ball and socket-joint. When a counterpoise weight was attached at the other end of the suspending rod, just sufficient to *balance* the weight of the fly-wheel and its frame, the horizontal revolution did not take place; but when a greater weight was attached, so as to *over-balance* the rod, a similar revolution took place in the opposite direction to the former one, the fly-wheel maintaining its level in each case, until the velocity of the rotation on its axis became considerably diminished, when it gradually sank down to the lowest position if unbalanced, or rose to the highest position if over-balanced. If the suspending rod and fly-wheel frame were made forcibly to revolve horizontally faster than, or in the opposite direction to, the self-assumed motion, by applying a sudden lateral force, great resistance was opposed to this extraneous force, and the result was a sudden fall or rise in the fly-wheel and frame, according to the direction of the force applied.

The instrument was shown in action by Mr. Siemens, and he explained that its original invention had arisen from an investigation into the laws of the stability in the axis of the earth's rotation, upon which M. Fessel had been engaged, that had led to the trial of various experiments in rotating bodies; and the present instrument, although not useful in itself, could not but be interesting and servicable as an aid in investigating the action in all parts of mechanism in rapid rotation.—[London Artisan.

Machine for Quarrying Slate.

Slate have heretofore been all cut out in quarries by hand labor. The workmen with picks cut grooves in the rock to the depth required, and then the slate comes off in thin layers the size of the space between the cut grooves, forming rectangular slabs. To supersede this slow method of quarrying slate Henry J. Bremner, of Nazereth, Pa., has invented a machine for which he has applied for a patent. The cutters are operated so as to feed forward and cut out a groove in one direction, the desired length, and then it (the machine) is turned, and the cutters made to cut a transverse groove, and thus proceed until the rock is so grooved that the space between the side and two end grooves or cut channels, forms a slab of the size desired for the slate, when the slate is forced out, and splits easily into as many separate slabs as there have been horizontal layers from the surface to the depth the cutters have perforated. One of these machines has been in operation for some time, and has accomplished more than its inventor anticipated. It is operated by hand, and with one man will cut out more slate in one day than twelve men with picks by hand labor.

A New Repeating Gun.

On another page will be found an advertisement relating to a new repeating gun. An old correspondent sends us the following description of it:—It has a cylinder divided into three chambers, which (the cylinder) is revolved either by hand or a lever. On the right side of the barrel is placed a long tube for holding the powder, and on the other side a tube for holding the balls. The rifle barrel and these two tubes cover the three chambers described. A touch of the finger lets in the charge of powder, the cylinder is to be turned 60°, when a touch upon a catch lets down one ball from the ball tube, and then the loaded cylinder is turned into line with the barrel. He uses Maynard's Primer. One load for this gun consists of as many balls as would fill the barrel.

New Life Car.

Farnham L. Tucker of the city of Brooklyn, L. I., has taken measures to secure a patent for an improved life car, which is formed of a series of hollow cylinders, constructed of sheet metal of a suitable thickness, each of which is divided into compartments by partitions. These cylinders are connected together by rods, when required to form a life raft, and they are also designed as substitutes for life boats.

Another World's Fair Failure.

The failure of the New York World's Fair is not the only failure of the kind. From Bavaria announcements have just been received in regard to the results of the Great Exhibition at Munich, which was held during the last summer. Although a most brilliant display of the triumphs of German industry and art, it has cost the government about one million seven hundred thousand guilders above all the receipts, which is, in part, to be accounted for by the prevalence of the cholera last summer in Vienna and Munich, which probably deterred many from the visits to those cities which they had in contemplation.

TO CORRESPONDENTS.

L. R., of N. Y.—The weight of clock gives it motion; and the person who raised up the weight gave it motion. A spring also moves clock-work, and you may reason from this cause to the effect, that static power must never be connected with dynamics.

M. U. St. J., of N. Y.—We cannot supply the information you desire about those street sweeping machines.

W. R. & A. W. Jr., of Ill.—The steam brake which you describe is not patentable; the same thing essentially has been refused by the Office. It is not patentable.

W. M. S., of N. Y.—We do not know of any person engaged in selling patent rights. Your suggestions in regard to preventing collisions on railways we do not think much of. They strike us as cumberous and unpracticable. You had better however consult with some competent railroad engineer.

J. C., of N. Y.—Your flying machine sketches have been examined, and we can truly say that we think the arrangement novel and ingenious, and we presume a patent may be obtained for it, but candor urges us to caution you against spending much time and money on it. If you seek for mere pleasure it is a good field, but if you study profit and utility you will be disappointed, if your hopes are centered in its success.

J. L. Jr., of Ill.—We discover nothing patentable in Mr. W's. straw cutter.

C. J. B., of Pa.—Don't you see that your plan is in effect to make water run up hill? It will run down of its own gravity, but it will not go back as easily. It will take more power to work your pumps than the water they raise will give back to the wheel.

Pacific—We think your plan of making bricks can be patented. Making a molding as you propose is not patentable

G. W. R., of——Your method of causing the cutter bar to vibrate is not new or patentable. We have seen several plans of mowers in which the same principle is used.

H. H., of N. Y.—A double segmental rack operating alternately upon vertical racks, is an old device, and its change of use could not be secured by patent. You are advised not to apply.

D. W., of Cal.—We have seen the same method of applying water to wheels as is shown in your sketch. It is very similar to the method employed in the Rich wheel.

W. R., of Ala.—Your alledged improvement in lever engines is among the earliest inventions for the purpose.

W. F., of Pa.—We do not consider the device you describe for raising water practicable. We can scarcely see how it will operate at all. We are also doubtful about your being able to secure it by patent.

J. H. H., of Ala.—You are perfectly right about the balancing of the weight on the arms of the upright shaft; you will turn it easier than to have all the weight on one arm; this is transparent.

C. D. A., of N. Y.—Engine indicators are so made that one stroke, or any number of strokes, can be pencilled on the card. We cannot describe to you the method by word.

W. S., of O.—A balloon could not be compressed by rolling it upon a roller, so as to make it descend; the feat is impracticable.

E. L., of Ct.—We think there are chances for securing patents on your inventions. Make models and comply with instructions in our circular. It will be unnecessary for you to come until you are ready to have us proceed for the patent.

J. W. S., of Ohio—It is quite common to construct carriage seats to turn on a pivot, and allow occupants to pass to the back seats. The cross reach you will find illustrated on page 148, Vol. 6, SCIENTIFIC AMERICAN. You cannot secure it by patent.

S. H. W., of Mich.—Saws in the form of an endless belt have been used. A patent cannot now be secured for them.

C. E. G., of Geo.—The arrangement of a common hollow or female auger so as to set it to any desired size for cutting tenons on spokes and fellies is not new. The same thing is already done.

J. F., of N. Y.—You can procure the Glasgow *Practical Mechanics Journal* of Messrs. Stringer & Townsend, No. 222 Broadway. New York. We are much obliged for your favorable opinion of the SCIENTIFIC AMERICAN.

A. B. B., of New Orleans—Air slacked lime has lost its useful effect by absorbing carbonic acid from the atmosphere. You can render it as good as ever by burning it over again. Bogardus mills would be excellent for reducing bricks to powder. You can get them of various sizes, a small one will answer. Furnace ashes would be an improvement, but we cannot give you the proportions of the cement. We will try and get the other information for you, and publish it.

M. C. M., of Washington—Yours is received, accept our thanks.

N. R. R., of Lockport—Your beam appears to be new and useful.

J. H. T., of Conn.—Soda water is just water charged with carbonic acid gas. It is made palatable with extracts of sarsaparilla, strawberries, &c.

J. B., of——Royal blue spirits is simply nitro muriate of tin. The salts of tin are better than the spirits for cotton blue.

W. T., of Tenn.—Your suggestions in regard to laying bricks are very good, but do not involve anything upon which a patent can be secured.

H. L., of Mass,—The idea you suggest in regard to quenching fires in ships is not new. We have had a similar plan proposed to us before.

W. H., of Pa.—You could not obtain a patent for an improvement in reaping and mowing machines by constructing the cutting apparatus on the principle of shears.

T. R., of R. I.—We cannot give the information desired about the Solar Compass. You had better address E. & G. W. Blunt, 179 Water street, who are manufacturers of philosophical instruments.

Money received on account of Patent Office business for he week ending Saturday, Jan. 6]:—

J. P., of N. C., $20; R. D. N., of N. H., $30; S. G., of R. I., $25: J. R. A., of N. Y., $30; J. P., of N. Y., $10; T. M. C., of Me., $30; I. W., of Wis., $55; H. S. W., of N. H., $30; M. F. C., of N. J., $20; L. J. W., of N. J., $20; C. A., of N. J., $55; I. W. McG., of N. Y., $25; H. S. A., of N. Y., $30; J. J.. and H. F. M., of Ind., $30: C. W., of Ct., $30; F. P. H., of Pa., $30; A. B., of N. Y., $30; L. & D., of Va., $250; F. Y., of Ky., $30; D. W. H., of Mo., $25; P. L. S., of N. Y.. $25: J. S. J., of N. Y., $55; L. T., of N. Y., $20; G. D., of Ky., $30; W. T. Jr., of N. Y., $30.

Specifications and drawings belonging to parties with the following initials have been forwarded to the Patent Office during the week ending Saturday, Jan. 6:—

L. R., of N. Y.; G. R. T., of N. Y.; S. G., of R. I.; G. A., of N. Y.; A. M., of Ct.; Z. H., of O.; D. W. H., of Mo.; P. L. S., of N. Y.

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(For the Scientific American.)

Lateral Motion of the Earth.

A motion of the earth, in the direction of its poles, so as to change its axis of diurnal rotation, would cause a corresponding change in the equator, and in latitudes; and the waters of the ocean flowing towards the equator, as it changed, would change the bed of the ocean also. Now it is said that "observations of latitude, which are made with extreme nicety, indicate no changes of this kind." On the other hand, history informs us, that there has been a considerable change in the temperature of some climates; and navigators inform us, that fossil remains of plants and animals, which grow only in tropical or temperate climates, are found near the arctic regions, and the marine fossils which are found all over the land, and our extensive prairies (which with the exception of their grassy covering, are probably just as the ocean left them,) indicate that the whole Mississippi valley has once been the bed of the ocean.

To account for these apparent changes on our globe, the theory of upheavals and depressions has been adopted as the most plausible one heretofore offered. And though we can readily understand how islands and mountains, may be formed by upheavals, we cannot so readily conceive how whole continents may emerge from the ocean by such means. For if they are upheaved in parts at a time, each part must break the crust of the part to which it is attached, and so leave indications of rents or chasms all over the country, similar to those seen by Kendall in his expedition to Mexico. And if the whole or large tracts of land were upheaved at a time—then the ocean must have retreated, if not precipitately, at least at a rate which would have been perceptible in a few years; appearances in this State do not lead to either conclusion, nor do they warrant the conclusion that the axis of the earth has ever been changed by a comet; for in that case the waters must have retreated more precipitately than they would have done in the first-named case. On the contrary the land here indicates that the waters retired at a very slow and imperceptible rate, for then many freshets in the rivers must have overtaken the ocean at or near each point of recession, and their waters mingling with those of the ocean, would spread out and deposit their alluvium over the land in the vicinity of the rivers, and when the ocean had departed, the alluvium or soil would be deeper there than anywhere else; and this deposit would be in proportion to the magnitude of the rivers and the extent of country which had been washed by their waters. Such is the fact: the soil is deeper and the land richer on the streams (where the land through which they run is not too much broken—for in that case it would wash off again) than at other places. And on the Missouri river, in this and the adjacent counties, three or four feet is no uncommon depth for the soil, even upon the high lands, where they are level enough to retain it, and it is in some places five or six feet deep, in as many miles from the river. This gradually thins off as it recedes from the river, till it reaches an average depth, which is perhaps fifteen or twenty miles. In this soil there is no gravel, for it is a fine rich loam, just such as would float to a considerable distance in the water before it subsided. And as a large portion of it must have been washed off again by the tides and waves of the ocean, and by rains, before it could be protected by a covering of grass, it must have been much deeper when the ocean first left it.

As the lines of the public surveys in this State were run at a variation from the magnetic meridian, it must have been for the purpose of running them on the true meridian, but they now point about one degree to the east, in this county, for every eighteen or twenty years of time since the surveys were made. In 1843 I built a brick house, and by the compass ranged it with the public lines, but found that it ranged to the east of the mean pole; I again took another observation on the 5th inst., eleven years afterwards, and from the best calculation I could make from memory, it had advanced a little more than a half degree still further to the east. A cause for such a motion of the earth I think exists in the moon; three of the grand divisions of our globe, Europe, Asia, and Africa, lying close together in the northern hemisphere; and the southern hemisphere being covered principally with water; which latter obeys the attraction of the moon as it passes, but returns to its former level by the attraction of the earth, when it has passed, whilst the land must move in a body, that is, the whole northern hemisphere must move towards the moon and remain as the moon left it, unless it be attracted on the opposite side with the same force, when that side comes under the moon's influence. But here again, as in the southern hemisphere, the Pacific Ocean interposes and prevents the moon from acting upon it with the same power; in other words, the bed of the ocean being more distant from the moon than the land on the opposite side when that is under the moon, it cannot act upon it with the same intensity that it does upon the land. The earth's diurnal rotation will not prevent a lateral motion; for if a wooden ball, with one side heavier than the others, be given a rotary motion in water, the heaviest side will slowly turn to the bottom, without changing the axis of its rotary motion in regard to the water, whilst it changes 90 degrees in regard to the ball.

This motion of the earth may not be in a true plane, for the emergence of the new land and the submergence of the old, may change the center of attraction, and so give it a kind of oscillating motion. But it is probable that it has been near enough to a true plane, to have drawn the greatest part of our continent from under the Pacific Ocean. If there is no error in the facts stated, nor in the conclusion arrived at from them, some point, probably in the United States or its Territories, is going due east at this time; west of that point is going north of east; and east of it, south of east. And the influence of the American continent would throw the line of due southern movement rather west of a central line running north and south, through the above-named grand divisions, and some line in the Pacific Ocean, running in the same direction, to the North, so that our continent on the north-eastern shore of that ocean is enlarging. As the bed of the ocean is continually becoming richer by the washings from the land, and the land poorer from the same cause: "He turneth the rivers into a wilderness," and "turneth the wilderness into a *standing water*."—Ps., and so makes the ocean the great renovator of the land. H. POLLARD.

Lexington, Mo., Dec. 29, 1854.

(For the Scientific American.)

Purifying Salt.

I notice a suggestion in your very judicious remarks appended to an article upon the "Manufacture of Turks Island Salt," which, according to Dr. Ure in the following extract, will bear a much more extended application than has been given it, and will perhaps answer the purpose of your correspondent, C. P. Stratton, of Oregon. I allude to the use of caustic lime to purify the solution of chloride of sodium of the saline springs of that region:—

"The chloride of magnesium or bittern, not only deteriorates the salt very much, but occasions a considerable loss of weight. It may, however, be most advantageously got rid of, and converted into chloride of sodium (common salt) by the following simple expedient:—Let quick-lime be introduced in equivalent quantity to the magnesia present, it will precipitate this earth, and form chloride of calcium, which will immediately react upon the sulphate of soda in solution, with the production of sulphate of lime and chloride of sodium. The former being sparingly soluble, is easily separated. Lime, moreover, decomposes directly the chloride of magnesium, but with the effect of merely substituting chloride of calcium in its stead. But in general there is abundance of sulphate of soda in brine springs to decompose the chloride of calcium. The best way of proceeding with saline water, would be to add to it, in the settling tank, the quantity of lime equivalent to the magnesia, whereby an available deposit of this earth would be obtained (mixed with Ca. O.+So.^{3}) at the same time that the brine would be sweetened. Water thus purified may be safely crystallized by rapid evaporation."

The lime should be added in the state of "milk" or "cream of lime," in order to insure its diffusion through the brine.

M. P.

Baltimore, Dec. 29, 1854.

New Marine Engine.

In the SCIENTIFIC AMERICAN of September 23rd, I find an article on Steam Engines, wherein the Editor states that an iron steamship from Havre, having an engine of a peculiar construction, visited New York.—The ship has two engines, with two steam cylinders for each—the one a small high pressure, and the other double the size, which receives the steam from the first, and works it expansively, and is connected with the condenser. This, he says, is the Wolf principle, and, *he believes*, is its first application to a steamship.

Now, if the Editor of the SCIENTIFIC AMERICAN would condescend to inquire down in this Esquimaux country, he would find that the engine he so much admires has been invented and patented by a backwoods boy of this Province of the name of Tibbets, and that a fast boat of his own construction is now running on the St. John, and has been for the last seven or eight years; that he has since built two others on the same principle, and has a mill propelled in the same way.—He has also started two others in Canada, the whole of which have worked to a charm. If Brother Jonathan will only call this way we will not only enlighten him on steam, but prove also to him that "we are some pumpkins" at building clippers.—["Wakeful," St. John's Chronicle, N. B.

["Wakeful" must be a very near relation to "Rip Van Winkle." If he has nothing more new in steam than such engines to show Brother Jonathan, it will be a long time before the latter calls *that way*, to be enlightened on steam; and the innocence of "Wakeful" respecting the Tibbets' novelty of engines applied to steamboats and mills, is just what might be expected in an Esquimaux country, but not in New Brunswick, where the SCIENTIFIC AMERICAN has long been known and read. Such engines were applied to steamboats in this city twenty years ago, but we never saw them applied to ships, excepting in the one to which the above paragraph refers. That steamship was built in Glasgow, by Elder & Randolph. Double cylinder engines, like those of Tibbets, have long been employed on the Thames ferry boats.—The original inventor of such engines was Jonathan Hornblower, of Cornwall, England, in 1781—the uncle of Chief Justice Hornblower, of New Jersey. "Wakeful" can see an engraving of this engine on page 98 of Galloway's History of the Steam Engine, published in 1832.

Fusible Plugs.

MESSRS. EDITORS—What is the best alloy for a fusible plug for a steam boiler? I see by a report, in your paper, of a Committee of the St. Louis Steamboat Engineers, that they have no confidence in the fusible plug. We use in our boilers a brass plug $1\frac{3}{8}$ inches diameter; drilled $1\frac{1}{4}x\frac{3}{8}$ inches, and filled with lead, and have not, as yet, had one fail; we had previously used an iron plug $\frac{1}{4}$ inch dia., drilled $\frac{1}{2}x\frac{1}{4}$ inch, and filled with lead, but had one case of failure; the lead, in six months' use, became so changed that the boiler was burned without melting the plug. We now use the large size, and recommend our customers to renew the lead every three months. If you know of any better way, please let us see it, and oblige yours, respectfully, CHAS. W. KIMBALL.

Springfield, Mass., Dec. 29, 1854.

[We do not know of any fusible plug equal to the one our correspondent describes, and we are confident the information he furnishes on the subject will be appreciated by our engineers.

Inventors! Attention.

MESSRS. EDITORS—There appeared in Newton's *Journal*, some time last summer, a notice of an application for a patent for improvements in japanning leather, communicated to Mr. Newton from abroad, and the notice was published in about twenty days after a caveat was filed for improvements in japanned or patent leather, in the archives of the Patent Office at Washington, Now it lately appears, in the SCIENTIFIC AMERICAN, that letters patent are secured to A. V. Newton, of London, for improvements in japanning leather, the partial details of which sufficiently identify it with the caveat at Washington, to warrant the belief that it was derived therefrom.

It was the intention of the American inventor to patent his invention abroad, believing his caveat or invention safe in the meantime, until he could procure the means to do so; he has therefore either suffered injustice, or it is his fault in not being better informed, and it is such information which is now sought from the SCIENTIFIC AMERICAN.

The writer is aware of the importance of simultaneous patents at home and abroad, but supposed that caveats were an exception.

E. M. C.

Providence, R. I., Dec. 30th, 1854.

[It will be very difficult to explain the circumstances connected with this case,—they are very singular, and should serve as a caution to American inventors who intend to secure foreign patents. The English application should, as a general thing, be made first; owing to the law granting patents in England for imported inventions. Inventors who intend to secure patents abroad should be exceedingly careful of those to whom they entrust their business. Our correspondent, although well known to us, has not informed us who the inventor is to whom he refers. He may have suffered injustice from some party, but we cannot tell; he is the best judge of this himself.

Rhode Island Coal.

E. Cort, of Taunton, Mass., writing to the Providence *Journal*, thus speaks of the above named coal:—

"In looking over one of your late papers, I see a word to the capitalists of Rhode Island on the subject of coal. You say that it is not yet in use for making steam. I wish to tell you that I have made steam with Rhode Island coal for five years. I first used the coarse coal, then the nut size, and for three years I have burned the pea coal (that is the cheapest kind,) and all with satisfaction. I made no change in the grates. Any person wishing to see Rhode Island coal burn, can do so by calling at Albert Field's Tool Factory, Taunton. This is the third winter that I have burned it in my cooking stove. My wife prefers Rhode Island coal to the Pennsylvania."

Croup.

A medical correspondent of the New Hampshire *Journal of Medicine* states, that for three years he has used alum in croup, and in all that time has not seen a fatal case which was treated with it from the beginning. He usually gave about ten grains, once in ten minutes until vomiting is induced, using at the same time tartar emetic or the hive syrup freely—the latter subduing the inflammation, while the alum has more of a repulsive action.

Cure for Palpitation.

A lady about forty years old, says the *Journal of Health*, who has suffered severely from periodical attacks of palpitation of the heart, from the age of twelve years, has found immediate and permanent relief from the use of soda water. It appears from experiments since made, that carbonic acid gas is the active curative agent.

Chloroform Counteracted.

Dr. Robert de Lambelle, a distinguished physician of Paris, announces that a shock of electricity, given to a patient dying from the effects of chloroform, immediately counteracts its influence, and returns the sufferer to life.

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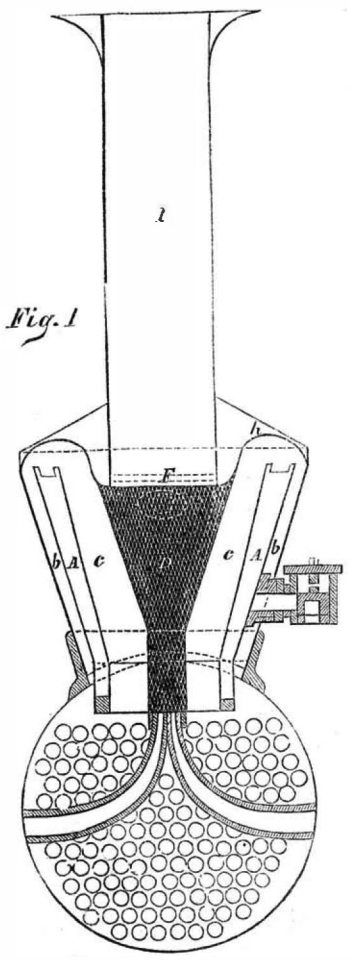
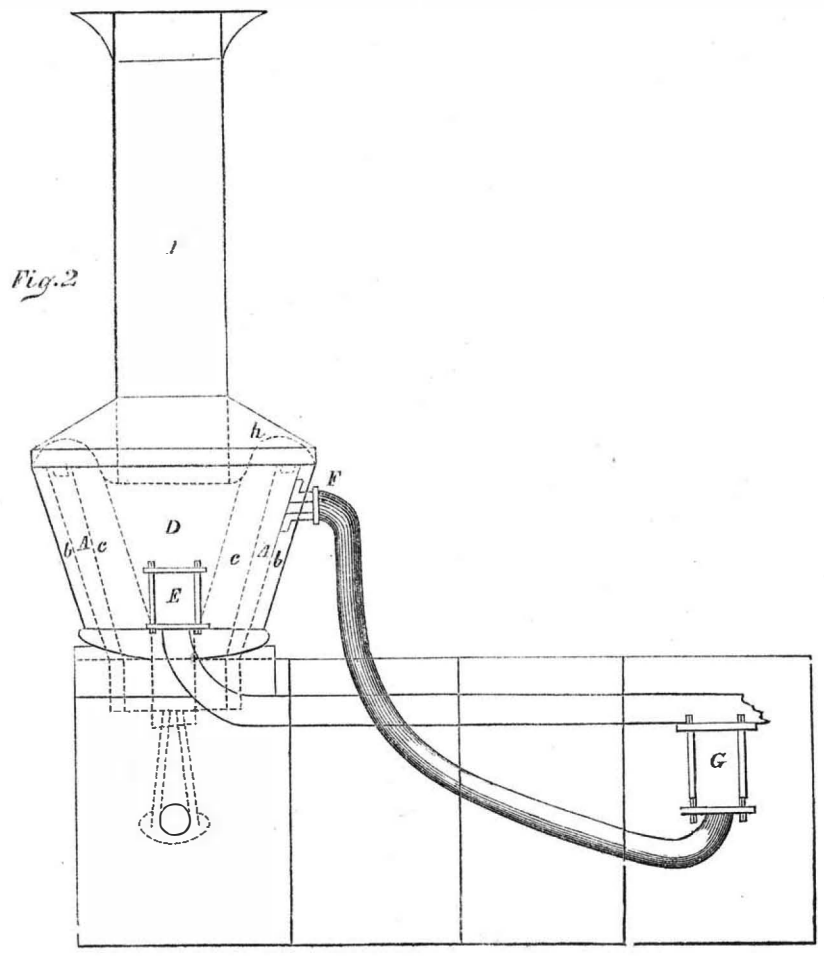
SPARK ARRESTER TO HEAT FEED WATER.

The annexed engravings are views of an improved arrangement in Spark Arresters for heating the feed water of locomotives, for which a patent was granted to R. A. Wilder, of Schuylkill Haven, Pa., on the 31st of last October.

Figure 1 is a transverse section, and fig. 2 is a side elevation. The same letters refer to like parts.

The invention consists in the arrangement of the flues, water space, and spark arrester, and the cooling of the smoke and sparks, and the heating of the water, preparatory to its entrance to the boiler, in a very efficient manner. A is a water chamber holding 20 gallons, into which the feed water is pumped for the purpose of being heated before passing to the boiler. *b* and *c* are flue spaces surrounding the water chamber, and connecting with the open pipe, I, through the spark wire. D is the spark arrester cone attached to the arched covering, *h*, of the flue spaces, and fitting closely around the exhaust pipes to arrest the sparks without causing any obstruction to the exhaust steam, as is the case with the use of deflectors. E is an attachment of feed pipe to the heater; T and G are attachments of pipe conveying the heated feed water to the boiler. Smoke and heat pass from the fire box upwards through the





flue space, *b*, then down into the space, *c*, into the perforated or wire cone, D, and thus heat the water in A. The apparatus is constructed of boiler plate, and is stayed with bolts in the same manner a fire box. It is simple and is adapted to the use of both wood and coal-burning locomotives. Mr. Wilder is Superintendant of the Mine Hill and Schuylkill Haven Railroad, on which road they have been in use for the past twelve months on ten engines (both kinds,) during which time they have proved very satisfactory, and have cost nothing for repairs. By a simple arrangement the water can be forced through the heater back to the tank when it is not required for the boiler. He has not been able to make correct experiments regarding the exact amount of fuel saved by its use, but he is convinced from general observation made by those running the engines, that it amounts to twenty per cent., and cannot be less than fifteen. The railroad on which it has been tested is one of the most difficult to manage in the world, and its success there will, no doubt as it should, arrest the attention of all those who, as managers and engineers, are connected with other railroads.

More information may be obtained by letter addressed to Mr. Wilder.

Improvement in Corn Planters.

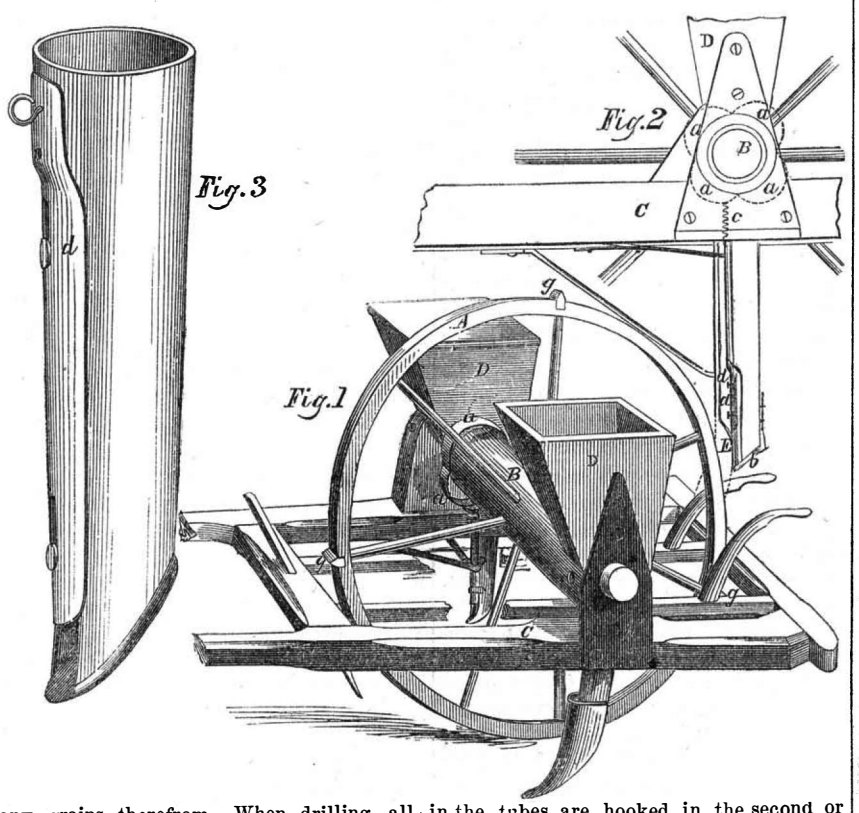
The annexed engravings are views of the improved Corn Planter, for which a patent was granted to William Redick, of Uniontown, Pa., on the 29th of August last.

Figure 1 is a perspective view of the machine; figure 2 is a section of a side elevation, and fig. 3 is an enlarged view of a conducting tube. The same letters refer to like parts.

The cams are arranged on the axle, the markers on the periphery of the carrying wheel, aud the valves at or near the bottoms of the seeding tubes, with their several operative parts, for the purpose of causing regularity in the marking, and dropping of the seed, however irregularly the motion or speed of the machine may be.

A is the carrying wheel upon which the machine is supported and drawn over the ground to be planted; B is the axle, fastened to the wheel so as to move with it. The axle extends out each side of the wheel a suitable distance, and is provided with cells at regular intervals, which receive from the hopper and carry to the seeding tubes the grains to be planted. These cells are provided with screws, the heads of which fit the cells, so that by the running in or out of these, the depth of the cell will be increased or diminished, so as to carry around only the regulated quantity of grains to be planted. In planting check rows, each alternate screw is raised to the periphery of the axle, so as to pass through the hopper without receiving any grains therefrom. When drilling, all the screws are sunk, so that every cell shall carry out its quota, and in this case the valves in the tubes are hooked in the second or lower hole, so as to remain all the time open. C represents one of the shafts; they are curved near enough together at their points, to suit the working of the horse, whilst at the axle where the teeth or shoes are arranged, their width may conform to the distance between the rows of corn. D is the seed box, there being one on each side of the wheel, or on each end of the axle, said hoppers diminishing in width from top to bottom, where they are open to allow the grains to drop into the cells. E is a tooth or shovel, there being one in advance of each seeding tube, for opening up a furrow into which the corn is dropped, the earth falling in over it, when the machine passes, as in ordinary operations. The bottoms or lower ends of the tubes fit in behind these teeth, so as to protect them from accident, by striking against any obstructions, or from filling with dirt.

REDICK'S CORN PLANTER.



a a a a are four cams arranged around the axle, B. *b* is a rod having its lower end attached to the valve, *d*, and its upper end pressed up against the cams by a spring, *c*, so that said spring and rod opens and closes said valve at every depression and swell of the four or quadruple cam. There is an inclined bottom on the tubes, made of spring steel, so as to yield, should a grain be caught in the valve, and allow it to be thrown out when the valve again opens. The markers, *g g g g*, of which there are four on the periphery of the wheel, A, must bear such relative position to the cams as that they shall arrive at the exact point where the seeds are to be deposited, after making due allowance for the time that the seed occupies in falling from the hopper or cylinder to the valve.

In relation to the construction and operation of this machine, Mr. Redick states, in his specification, that the devices which he uses have been employed before, separately, on seeding machines, but not combined, and that it was by observing the defects of their separate results, that he was enable to unite them, to produce a practical operative machine that can lay off the ground, and drop the seed at the marks previously made, without any variation caused by the unequal speed of the horse. In the old machines, the variable speed of the horse caused irregular planting, because the markers had a variable, and the seeds an unchanged, velocity. "By my arrangement of the cams, valves and markers," he says, "I have brought the machine practically to perfection in this particular, as the distance that the grains have to fall, allows the markers to come to the precise point, and should the markers vary the least from the exact point, either in overreaching or falling short of it, the operator, by the handles, can raise up or draw back the machine, to bring it right."

More information may be obtained by letter addressed to the patentee at his place of residence, Uniontown.

Improved Folding Chair.

Various plans of folding chairs have been brought before the public; that is, chairs convertible at will into a couch. They are no doubt very useful for invalids, and on this account, if well made, have solid claims upon public patronage. Some defect must have characterized all those heretofore constructed, or else they would have come into more general use; this at least is a reasonable conclusion. An improved chair of this character has just been designed by Seth D. Woodbury, of Lynn, Mass., who has taken measures to secure a patent for the same. The back of the chair and the foot board are secured by hinges to the seat, and so connected together that both back and foot board can be inclined to any angle, or placed horizontally so as to form a couch or chair for sitting or reclining at ease in any position desired.

Spring Balances.

An improvement in spring balances has been made by Elisha P. Beckwith, of New London, Conn., who has applied for a patent. It consists in surrounding the spring balance with a cylindrical funnel of sheet metal, or other proper material, and having its periphery graduated so that not only the weight of the article is determined, but also its cost, at a given price per pound.

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Scientific American.

NEW YORK, JANUARY 13, 1855.

Useful Reading.

It is frequently necessary for editors, like preachers, to enforce by reason and argument, good old doctrines of personal and public policy, and we do not know one that requires to be so often alluded to as that which is embraced in the title of this article. But, as the finest strain of music soon gluts and palls the ear by frequent repetition, so does a continual harping on one subject—however necessary and useful it may be—soon satiate the mind. Prudence, therefore, compels us to select this subject only at considerable intervals of time, and under peculiar public circumstances.

At the present time, amid all the cries of distress which come up from every quarter, and amid all the general prostration of business, we are creditably informed that foolish amusements and trashy literature were never better patronized in our city. We are convinced from the great number of flaming advertisements of silly and contemptible new books, that the sale of them must be enormous. We think this affords no great cause for national congratulation, as it regards an improvement in general intelligence or taste. Real useful works—those which appeal to the understanding, and exercise the more noble faculties of the mind, have but a limited circulation in comparison with blood-and-thunder stories, and puerile works of fiction. This is to be regretted, for, as food and drink are to the body so is reading to the mind. Good reading makes the mind healthy and strong; poor reading on the other hand, befools and enervates it. As much care should be exercised in selecting reading for its quality, as in selecting food; for the mind is as susceptible of being poisoned as the body. There are thousands upon thousands whose minds have become so debilitated by wretched literature, that they cannot sit down and read any solid article whatever; and these persons—at least many of them—might have become ornaments of society, or might have distinguished themselves in many important positions, if they had not chosen to feed upon the husks, in preference to the solid golden grains, of literature. Any mind, however strong, may become weak by a great deal of indifferent reading. Youth, however, is the most trying period of life, as it respects the formation of literary tastes and habits. Parents, therefore, should be very watchful of the books and periodicals which they allow in their families. They should endeavor to induce habits of reflection in their children, and enjoin upon them the study of such authors, and the reading of such periodicals as incite the mind to profitable thinking. To do this, the means should always be adapted to the ends desired to be obtained. Can any father who has a son learning a trade, suppose that his son can ever become an intelligent mechanic (as he would no doubt like to see him,) if he never reads a periodical devoted to science and mechanism? The thing is preposterous. The young mechanic who never reads a solid useful work relating to his trade, will drag at the lower spoke of the wheel; he must be insane if he supposes there is any chance for him distinguishing himself in his trade, or at anything else, unless he improves his mind by storing it with useful information. Every young man, therefore, who desires to excel and to distinguish himself, must be careful of his reading. Many of those books and periodicals which weak minds call *dry*, are the choicest gifts of literature. We know that it requires much effort to acquire a liking for reading those works and periodicals which give the mind labor. It is a hard task to concentrate the thoughts upon an author, when at the end of every page the mind must pause to revolve what has been read, and seek some rest; but young men should endeavor, at all hazards, to acquire a liking for such kinds of reading, for those who do not, never can rise to be mentally influential or respected. There are two maxims, viz: "knowledge is power," and "there is no royal road to knowledge," both equally true, and deserving to be deeply engraven on every young man's mind, for no ignorant man ever has or ever can become powerful or distinguished, and no man can become intelligent without labor.

Will our young mechanics think of these things, and apply their hearts to wisdom, so that with all their getting they may get *understanding*.

Doings of the Patent Office.

The largest number of patents ever granted during a single week since the establishment of the U. S. Patent Office, was the issue under date of January 2nd,—the total number of grants being over eighty.

It is understood that among the patents now granted are several cases which have been lingering in the office for the last year or more, and that with the present delivery nearly all the old unfinished business of the department is cleared out. It is also understood that applications for patents will in future be acted upon with comparatively little delay.

Inventors should remember that the great seal and parchment of a patent are in themselves of no value. But it is the claims which they certify to that are of worth. A valuable improvement may be so sacrificed by a botching of the specification and claims, that the patent, when issued, shall only be worth the picture of the Patent Office which the document bears.

Commissioner Mason is entitled to, and will receive the thanks of all inventors for the rigorous and efficient manner in which he has conducted the affairs of the Patent Office. The number of patents issued during the last year is much greater than during any year previous. The personal labor which the Commissioner has gone through with, in order to develope and rejuvinate the Office is truly immense. He has swept out a labyrinth of rubbish, besides carrying forward a giant load of other work, and now his department stands forth life-like, active, and strong. In the name of all American inventors, again, we thank him.

Of the long list of patents issued last week, nearly *one quarter of the whole* were obtained through the Scientific American Patent Agency.

Anthracite Coal in England.

Two correspondents have written to the London *Mining Journal* respecting the employment of anthracite coal in grates in England, and both of them assert they have resided in America. They both speak highly of this coal, but state it cannot be used in houses but with grates or stoves like those in common use with us. They speak highly of our clear atmosphere in comparison with that of London, simply because we burn anthracite, and the Londoners bituminous coal. One of these correspondents corroborates what we said in giving advice, about three months ago, to our Pennsylvania friends "not to form a company for exporting their coal to England, as it would prove a losing affair." He says the Welsh anthracite, and some from Pembrokeshire, are equal to the best American, and can be obtained at "a much cheaper rate." The other advocates its employment for smelting iron, as well as for raising steam and other purposes, and concludes that there is anthracite coal in Wales alone to last England for a thousand years to come. Our friends in Pennsylvania may rest assured that any attempts to export anthracite coal to England will redound to their loss, which would be a cause of regret to us.

All Over with England.

We see it stated by a number of our cotemporaries, that Clinton Rosevelt—a lawyer of our city—who lately sailed for Russia, has sketched the plan and calculated the cost of a wonderful compaign, on a piece of parchment so small that he can carry it about secretly on his person without fear of detection, and that his plans are so profound that the Czar under his able advice will carry the war next year into Great Britain itself. Let England look out in season, or by next year every soldier in the Crimea may find his breath cut short by a piece of sticking plaster, or some such wonderful breath stopping agent, projected from some new ordinance of Mr. Rosevelt's invention. We think, however, there must be some mistake about the plan of the campaign being sketched on a very small piece of sheepskin by Mr. R., as has been stated; those who have made the statement cannot be acquainted with his profuse and comprehensive genius. Again we say to Uncle John Bull, look out for an attack on *Yar-mouth* next year.

Mill Stone Dress.

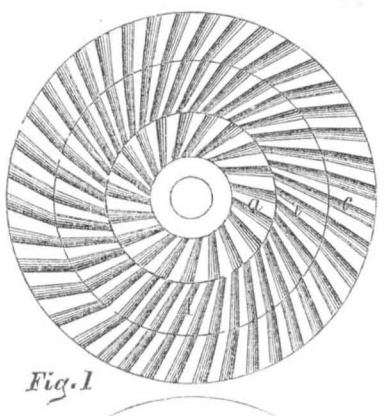

Fig. 1

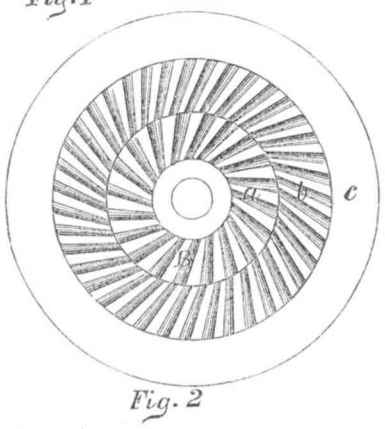

Fig. 2

The annexed figures are views of a runner and bed stone, having an improved dress, for which a patent was granted to Perry Dickson, of Blooming Valley, Crawford Co., Pa., on the 12th of last September.

A, fig. 1, is the runner stone, and B, fig. 2, is the bed stone. The figures show stones of four feet in diameter, with the grinding surface reduced to three feet. There should be about twenty furrows in the course, *a*, more or less, according to the texture of the stone, and draughted two and a half inches by the center of the eye. If the stones, however, are very close in the texture, they should have three inches of draught. The second course of furrows, *b*, has double the number of *a*, and these are draughted at least five inches by the center. The ground mass is more liable to clog in the furrows when well pulverized, than when partly ground, which makes more draught necessary in course *b* than *a*. The outside course of furrows *c*, in runner A, are not intended to grind, but merely to operate as conveyors in delivering the ground mass from between the stones. The bed stone, B, from course *b*, is dressed down below the grinding surface or top of the *lands*, about one-fourth of an inch, and is always kept so dressed, to allow the mill to deliver freely under all circumstances.

The object of this invention is principally to reduce the diameter of the grinding surface of millstones, and thereby avoid the necessity of having a great draught to the furrows, by which means a more certain action of them is secured.

Mr. Dickson has sent us quite a long article, giving his views on the peculiar action of grinding stones, both as it respects their draught and size, which we will endeavor to present clearly in as few words as possible.

The furrows of millstones should operate as shears in grinding grain, but in order to grind cool, with ordinary or large sized millstones, the furrows are draughted so much that those of both stones cross one another at right angles, or nearly so, and shears will not cut with blades working at right angles. In order to get grain through large stones, it is necessary to have a large draught, and this makes a very uncertain grinding mill. Large stones, with the usual amount of draught which is given to them, grind unevenly. If the miller allows them to run free, they throw out a portion of the ground mass in coarse particles, while the rest is well pulverized. And if the miller lets them run close enough to grind all the grain fine, he spoils the greater quantity by trying to grind the less. But mill stones of small diameter do not require much draught. Their small draught makes the furrows work like shears, and they have no slip. They also grind cool, as the furrows can be made deeper.

Practical and theoretical men have disputed about the qualities of large and small mill stones: the former claiming more work for the small ones by the same power applied, and the latter disputing such a conclusion. But small stones will grind more grain than large ones with a given amount of power, because they discharge the grain at once when it is sufficiently ground. Large stones on the contrary over-grind some of the grain and thus waste power.

All small mills have heretofore used pressure spindles in seme shape or other, except one in Buffalo, which is run with four or five times the common velocity, in order to perform, by great speed that which others perform by pressure. Pressure spindles are objectionable on many accounts, and small millstones, backed up high to add sufficient weight, become top heavy and useless. By the above improvement, small stones, in effect for grinding, are made out of large ones, which latter gives the necessary pressure without adding top weight to the spindle, and thus the advantages of both are secured. Each of the furrows in this millstone dress has exactly the same draught at any distance from the center of the stone, and will grind evenly, and not as in the old fashioned dress, of furrows.

The claims for this improvement will be found on page 14, this Volume Scientific American, and more information may be obtained by letter addressed to Mr. Dickson at Blooming Valley.

Colored Atlas of Chemistry.

Edward L. Youmans, author of the colored chemical chart, encouraged by the favor with which that elementary work was received, has extended that principle of teaching chemistry, in a new work of the above name, issued by D. Appleton & Co., this city. It is a handsome large volume, containing thirteen beautifully colored plates, not only explanatory of chemical compounds, but chemical action. The chemistry of combustion and illumination, likewise that of respiration, in animals and plants, is clearly set forth by the colored plates, so as to exhibit the same at a glance to the most common understanding. We like this work of Mr. Youmans amazingly, both on account of its peculiar method of representing the different substances by different colors, and different sized squares, but also because of its brevity and clearness of description. It is a valuable book for academies, and the higher classes in common schools. That Mr. Y. is a believer in the plurality of worlds, no one will doubt after reading the following eloquent closing paragraph of his work:

"If, therefore, our sun, the great center of vital dynamics, and fountain of life-impulsions, which has charge of the destiny of our planet, alike its atoms and its masses, be but a solitary star among the countless hosts of the celestial spheres; if the earth be a scene of life, beauty, and intelligence, only by virtue of its astronomical relations; if the messenger of God, the solar beam, comes through the spacious amplitudes a hundred millions of miles, to illuminate and vivify and people an otherwise desolate globe; if the life-exciting forces traverse stellar distances and belong to astral systems, can we imagine even for a moment, that the phenomena of life are limited to our earth? Can there be a question that organization is the product of a plan of agencies which comprehends the physical universe, and that the effect must be as usiversal as the cause?"

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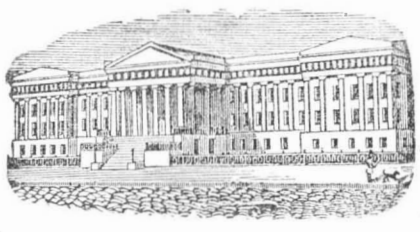

[Reported Officially for the Scientific American.]

LIST OF PATENT CLAIMS

Issued from the United States Patent Office.

FOR THE WEEK ENDING JANUARY 2, 1855.

MACHINES FOR BORING, PLANING, AND SLOTTING METALS—Norman Aylsworth, of Rochester, N. Y.: I claim the so arranging of the several operative parts of a machine for turning, boring, and cutting key seats in car wheels, cranks, and other machinery, as that the three several operations may be completed from the same centers, without unchucking said piece of machinery, by which means more perfect work can be done than when the piece is removed or re-chucked for two or more successive operations, the whole being achieved in the manner set forth.

APPARATUS FOR FEEDING PAPER TO PRINTING PRESSES AND RULING MACHINES—David Baldwin, of Godwinville, N. J.: I claim, first, feeding sheets of paper singly or one at a time, to a printing press, paper ruling, or other machine requiring the feed of a single sheet at a time, by means of a vibrating frame, B, having at its lower end a series of tubes, f, which, as the frame, B, vibrates, pass over the sheet to be fed to the machine, and also over a portion of the cylinder or other device for receiving the sheet, a vacuum being formed and destroyed in said tubes, f, by means of an air pump, F, attached to the frame, B, and operating as herein shown, for the purpose of causing the tubes, f. to convey the sheets from the feed table to the receiving device of the machine.

Second, I claim the self-adjusting feed table, Q, constructed and arranged as shown, or its equivalent way, so as to be operated by the vibrations of the frame, B, and keep the sheets, x, close to the ends of the tubes.

Third, I claim the tubes, as shown, on a vibrating frame, when said tubes, with the aid of an air pump, are employed for conveying the sheets to the press or machine.

CONSTRUCTING VESSELS—William Ballard, of New York City: I claim the construction of the bows and the sterns of vessels, in an O G form, substantially as described.

LOOMS—Abram Brigham, of Manchester, N. H.: I claim the mode described of locking together and adjusting two or more cams on one shaft, viz., by means of the convexities and concavities applied to them, essentially as specified.

I also claim the combination of the movable or sliding tappet, t, and the extra cam sr lip, p, with each other on the main cam, or its shaft, and the treddles the whole being made to operate together, substantially as and for the purpose stated.

GRAIN AND GRASS HARVESTERS—John E. Brown & S. S. Bartlett, of Woonsocket, R. I.: We claim, first, hanging or hinging the bar, G, to the carriage, so as to vibrate substantially as described, in combination with the hanging or hinging of the cutter stock to the bar, G, substantially as described, so that the cutter stock may vibrate, and accommodate itself to any undulations in the surface of the ground, and so shat it may be raised by the attendant to pass stones, stumps, or other obstructions without tipping the carriage.

DOVE-TAILING MACHINE—Thos. H. Burley, of Cincinnati, Ohio: First, I claim the inclined frontng guide in combination with the oblique cutting edges of the saw teeth, in the manner and for the purposes set forth.

Second, I claim the double inclined tables, in combination with the series of vertical chisels, in the manner and for the purpose set forth.

GRAIN AND GRASS HARVESTERS—Marshall Burnett and Charles Vander Woerd, of Boston, Mass.: We claim making the same shaft or axle, H, which serves to drive the cutter rods, cutter or cutters, serve also as the pivot or center of the joint between the cutter bar, M, and the carriage, A, substantially as described, thereby preserving the proper relation between the cutter or cutters and their driving mechanism.

LOCKS FOR FIRE ARMS—J. S. Butterfield, of Philadelphia, Pa.: I claim the combination of the sear, e, with the cam, c, (the latter operating in the slot, h, of the main spring, d,) the respective parts being arranged in the manner set forth.

TRAP FOR CATCHING ANIMALS—James Caffrey, of Paradise Township, Pa.: I do not claim a revolving platform.

But I claim the peculiar arrangement and construction of the lever, I, spring, L, and wire grating, G, acting simultaneously with the revolving platform, D, to cause the trap to act and set itself, substantially as described.

DRIVING CIRCULAR SAWS—Thos. J. Flanders, of Manchester, N. H.: I claim, first, supporting a circular saw edgewise, and operating it at the same time by means of two spur gears or their equivalents, arranged and operated at right angles to the saw, so that the said gears act upon the plate of the saw between the teeth, or through holes in the plate to propel and support it edgewise at the same time, as described, thereby dispensing with the shaft or its equivalent heretofore used to propel and support the saw.

Second, crimping or corrugating the plates of saws substantially as described, so that they will require little or no setting, and to make them stiffer, also that the bends may run in contact with the sides of the score-cut, and support and steady themselves so as to be less liable to be swerved by knotty, cross-grained, or hard places in the wood or material sawed, and at the same time run with less friction and power.

Third, making the teeth of crimped or corrugated saws, separate from the plate, and fastening them into the recesses formed by the crimping, or corrugating the bends in the plate of the saw, so that the saw may be supported and steadied by roller guides or otherwise, substantially as described.

Fourth, making the teeth of saws one-half the thickness of the plate, or less, by taking off the side of the tooth, and the opposite side of the next tooth, as described, so that they will cut one half or less than one half the thickness of the saw kerf, so that the saw will run at a higher speed without heating, and execute a given quantity of work with two-thirds or less of the power heretofore required, substantially as described.

CHURNS—Ezekiel Gore, of Bennington, Vt.; I claim making the pins, D, with their inner ends flat, and so arranging them that they may be turned to the right or left as desired, and thus made to present a large or small resisting surface to the agitated cream, and facilitate or retard the production of butter, substantially as set forth.

MACHINES FOR CUTTING OUT BOOT AND SHOE SOLES—J. W. Hatch, and Henry Churchill, of Rochester, N. Y.: We claim giving the cutting knife or punch, C, half a revolution on its axis after every cutting operation, substantially as described, by any suitable mechanical means for the purpose of reversing its position for the next cut, and thereby, when its ends are of unequal width, preventing the waste which, without some such provision, would be unavoidable.

COMPENSATION BALANCES FOR TIME KEEPERS—Charles W. Hawkes, of Boston, Mass., and George P. Reed, of Waltham, Mass.: We claim the compensating lever, or its equivalent, in combination with the radial arms, b and d, substantially in the manner and for the purpose described.

APPARATUS FOR ATMOSPHERIC PILE DRIVING—Alexr. Holmstrom, of New York, N. Y.: I claim, Firstly, constructing the air lock in such a manner that the pressure of the air, either within the lock or within the hollow pile, may be governed by the workmen inside, whereby they are thus enabled wholly to control the means of escape for themselves.

Secondly, I claim combining with the air lock, a hoisting apparatus, to which the moving power is given from the outside of the lock, but the application of that power to the windlass is made by the workmen within, whenever the same may be required, whereby those men are not only relieved from any extra exertion, but the ability is also maintained of applying greater force than could be done were the motive power given from within, the whole being constructed and operating substantially as set forth.

RAILROAD CHAIR MACHINES—J. B. Harris, of Cincinnati, Ohio: First, I claim the hoiding plate, e, fig. 8, and the leaf, o, with the slots, a b, fig. 9, and the block, d, with the screws f e, in combination with the crank cutters, N, the whole being arranged as described, and for the purpose described.

Second, I claim the cutter with salient cutting edges, thus making the cut (see N, figs. 5 6 and 7) concave in its length, substantialty in the manner and for the purpose described.

COTTON GINS—Asa P. Keith, of Bridgewater, Mass.: I claim the slanting circular openings through the brush-heads with the guide flanches on the inside substantially as described.

MACHINES FOR FORMING FLANGES ON WROUGHT IRON BEAMS—Julius H. Kroehl, of New York, N. Y.: I do not claim the employment for forming or reducing metal bars, of two pairs of rollers arranged as described when the side rollers, C C, have no flanges or no movement in the line of the axis, or any of the rollers are otherwise constructed than as described.

But I claim the combination of the wide and narrow rollers, B B, and the flanged rollers, C C, which have a movement in the line of their axis corresponding with the desired form of the edges of the flanges or the beam, for the purpose of finishing or smoothing the said edges, substantially as set forth.

TONGUING AND GROOVING—Hazard Knowles, of New York, N. Y.: I claim forming, tonguing, and grooving cutter heads, of combined disks of steel, which have cutting edges formed on their peripheries, of such a shape that new cutting edges can be formed upon them as the old wear away, without reducing their diameters, substantially as set forth.

MACHINES FOR FORGING CAR WHEELS—Wesley M. Lee, of New York, N. Y.: I claim forming the face of the hammer die with flutes or projections, substantially as specified, when combined with the turning of the die or anvil during the operation of forging or swaging, substantially as and for the purpose specified.

CONSTRUCTING PAVEMENTS—Jean Francois Le Moulnier, of New York, N. Y.: I claim effecting the thorough union of the asphalt compound, or any equivalent therefor, and stone by heating the block of stone previously, substantially as specified.

SHINGLE MACHINE—Adrian V. B. Orr, of Steelville, Pa.: I am aware that knives both double and single, planes working in slides and stationary, rollers, springs, &c., have all been used in various combinations for the purpose of making shingles, I do not therefore claim to be the inventor or discoverer of any of these mechanical devices, or to be the first who has applied them to the purpose of making shingles.

But I claim, first, constructing the frame or slide D of the splitting knife with two faces a and b, the one being the thickness of a shingle in advance of the other, as described, and for the purpose set forth.

Second, I claim the device of raising the shaving knife, f, from the platform, R R, during its back motion, for the purpose of allowing room for the introduction of the piece to be shaved, substantially as described.

Third, I claim moving the holdfast up and down by the means described, so as to have its use when wanted, and the removing it out of the way of the finished shingle, in its descent, as already set forth.

REGULATING THE SIZE OF ROVING—Samuel Pearson, Jr., and Wm. H. Gardner, of Roxbury, Mass.: We claim the combination of the brake, Q (forced downward by a spring or its equivalent), the brake-wheel, R, the shafts, S and T, and the connecting gearing of such shafts as applied to the draw rollers, and the gill or heckle belt, and made so to operate and produce effects substantially as stated.

PROCESSES FOR EXTRACTING TANNIN FROM LEATHER—Obadiah Rich, of Cambridge, Mass.: I claim the process herein described for the removal of tannic acid from leather, the subsequent preparation of the skin for making glue, substantially as set forth.

SIGNAL FLAGS—Henry J. Rogers, of Baltimore, Md.: I claim the square signal flag with diagonal symbols, so that the same flags shall answer for signals in a high wind, and in a calm, as set forth.

SPLITTING RATTANS INTO STRIPS—Sylvanus Sawyer, of Fitchburg, Mass.: I do not confine my invention to the precise form or construction of any one or more of its parts, so long as I do not substantially change the character or principle of my invention.

I claim a combination of mechanism for splitting the rattan into sectional strips, and a mechanism for removing annular or symmetrical strands therefrom, substantially as above specified.

I also claim a combination of mechanism for splitting a stick of rattan into sectoral or triangular parts or strips, and a mechanism for rounding and dressing, or finishing, either one or more such strips, substantially as specified.

I also claim a combination of mechanism for splitting a rattan into sectoral parts or strips, a mechanism for removing or separating from such parts annular or segmental strands, as specified, and mechanism for rounding, reducing, or finishing either one or more, or all of the triangular strips or parts of the pith or inside portions of the rattan, as specified.

PROCESSES FOR MAKING SOAP—Richard A. Tilghman, of Philadelphia, Pa.: I claim the manufacturing of soap by subjecting a mixture of fatty matters and solution of carbonanted alkalies to a high temperature and pressure, as described.

LIFE-PRESERVING RAFTS—Farnham Z. Tucker, of Brooklyn, N. Y.: I am aware that buoyant cylinders of metal or india rubber, either made in sections or of one chamber throughout, have been used as life preservers, boats, and rafts, and I therefore do not claim constructing a raft of such tubes.

But I claim the manner I have set forth of connecting such buoyant cylinders by passing rods through tubes at right angles, as shown in the drawing by letters f, f, a, and g, and secured by nuts in connection with the straps or bands, d, whereby I make a strong convenient and ever-ready life preserving raft.

PROCESS FOR MAKING INDIA RUBBER CLOTH—Henry G. Tyer and John Helm, of New Brunswick, N. J.: We claim the peculiar mode, so described, of preparing the uppers of boots and shoes.

SHEET IRON BLINDS—Wm. E. Ward, of Port Chester, N. Y.: I claim the manufacture of Venetian blinds of sheet metal bent in the form and united in the manner substantially as specified.

SEWING MACHINES—Daniel T. Ward, of Newark, N. J.: I do not claim any particular method of moving the needle, neither do I limit myself to using my improvements with the arrangements of needle and levers to the same herein shown.

But I claim the sliding fork, 8, with or without the bristles, 9, to detach the thread from the sides of the needle, or form a guide to the loop for the passage of the looper or shuttle, in the manner and as described and shown.

PROTECTING SLIDES AND WAYS OF VALVES FROM DUST—Edward H. Foote, of Hartford, Conn.: I am aware that the slot in the upper part of the tube in atmospheric railways, through which passes the stem which connects the piston inside the tube with the car on the rails above, has been closed to exclude the air by means of a flexible valve, or valves, which is kept closed before and behind the said stem as it travels along the said valve, yielding to the motion of the stem. And I am also aware that dust has been kept out of journal boxes by surrounding the journal with a leather collar, and therefore I do not claim broadly excluding dust from mechanism by such means,

But I claim the combination of the flexible guards which enclose the ways of slides in machinery, substantially as specified, in combination with the cross head, and the clasps or their equivalents, substantially as specified.

TANNING PROCESSES—Rufus Keeler, of Rochester, N. Y., assignor to Lewis C. England of New York, N. Y.: I claim the deseribed improved method of tanning leather, by introducing oil into the tanning liquor, and effecting its incorporation with the leather in combination with the tannin, substantially in the manner and for the purposes as set forth.

MANUFACTURING WOODEN BOXES—Louis Kock, (assignor to Theodore Pincus,) of New York City.: First, I claim the means of making differeut sized boxes on the same machine by the mere change of the cams R', S', D', and the pulleys U, U', corresponding to the size of boxes, as described.

Second, I claim cutting off the boxes, when finished, by tools f, f', fastened to spindles l or l', said spindles being attached to the tool-holders and worked by an arm n, or n', fast on the end of the spindle, as described.

Third, I claim the construction and application of the frames N or N', with cones M or M', respectively, attached, actuating through the arms n or n', the spindles l or l', and consequently the tool f or f', said frames being worked by cams D', and levers H or H', as described.

Fourth, I claim the arrangement and connection of the supports Q or Q', provided with shafts and ratchet wheels, between which latter the wood out of which the boxes are to be made is held, said supports being worked by cams S', and levers F or F', for feeding the wood to the tools and releasing the same as specified.

Fifth, I claim the construction of the pulleys U and W, or U' and W', worked by cams R' and levers E and E', as well as by weights Z and Z', as described; said pulleys, when connected, acting upon the upper shafts V or V', running in the supports Q or Q', for approaching the wood up to the tool holders after the completion of each set of boxes.

CURTAIN FIXTURES—Peter H. Niles, (assignor lo himself and John A. Richards,) of Boston. Mass.: I am aware that it is not new to support the pulley on a pin fixed in and projecting from a bracket, nor to make the pulley with but one flange or head d, and so as to have its barrel c, work in a chamber e. I therefore do not claim such.

But I claim arranging the spring in that chamber of the bracket in which the body of the pulley slides.

I do not claim making the pulley body with a chamber for the reception of a spring, or for any other purpose.

But I claim so arranging the secondary or lesser chamber g, with respect to the chamber e, that the spring F may extend into both chambers, as specified, whereby an advantage as above stated may be attained.

COMPOSITIONS FOR UNHAIRING HIDES—Andrew H. Ward, Jr., (assignor to himself and Kirk Boolt,) of Boston, Mass.: I claim the application of a compound solution of carbonate and sulphate of soda to hides and skins, for the purpose of loosening their hair, and preparing them for the reception of tannin.

SEED PLANTERS—Alexander Anderson, of Markham, Canada: I claim the peculiar construction of my seed planter by whtch the apertures f f, are made to perform the double function of carrying a graduated amount of seed to the discharge spout, and also to receive the teeth of the wheel o, by which motion is communicated to the endless apron, as set forth.

SELF-SEALING PRESERVE CANS—Robert Arthur, of Washington D. C.: I claim as a new manufacture a vessel made with a groove to surround its mouth, prepared with cement, and ready for hermetical sealing; but to hermetical sealing itself I make no claim; neither do I claim a ground stopper or cover and seat for hermetical sealing, whether the ground surfaces of such stopper or cover and its seat be prepared with cement or not.

JOURNAL BOXES FOR CARRIAGES—S. B. Bachelor, of Lowville, N. Y.: I claim the mode of constructing the stationary inseparable unfted recess in pipe A, in combination with the single adjustable axle shoulder band, D, and band C, with the cap, E, and screw, F, as described, or in any other manner substantially the same, by which I am enabled to use any axle of the common manufacture, as set forth.

SUSPENDED PURCHASES—Wm. H. Brown, of Erie, Pa., patented in England Oct. 2, 1854: I do not claim a suspended cable for transporting weights of any kind across ravines or streams; nor do I claim transporting bodies of any kind by means of a movable cable or catenary, which is to be raised or lowered to deliver the burden or weight at any intermediate place between its points of suspension or fastening, as these have been assayed.

But I claim, first, in combination with a permanently suspended cable, a carriage provided with suitable block and tackle, by which a suspended weight of any kind may be transported to any given point, and then lowered and raised, or by which it may be lowered or raised as it is transported, at pleasure, substantially as described.

I also claim in combination with a suspended cable a truck or carriage composed of a main wheel, D, guide wheels, E E', and a flexible frame, c, so that the wheels may adjust themselves to the line of the catenary, as described.

I also claim the automatically coupling and uncoupling of the blocks, F, G, substantially in the manner and for the purpose set forth.

I also claim the system of equalizing beams, Q, R, S, when combined with two, three, or more cables, for the purpose of evenly distributing the weight upon the several cables, as set forth.

TEETH—Sharpless Clayton, of West Chester, Pa.: I claim the dovetail grooves formed in the base of the teeth, and the holes through the teeth, said groove and holes to be filled with pure tin, cadmium, or any other fusible metal, so as to form a dovetail flange and pins, as described, for the purpose of securing the teeth and gums to metallic plates, as set forth and described.

APPARATUS FOR STEREOTYPING—Willard Cowles, of Washington D. C.: I do nct claim the use of plaster of Paris or clay for the making of molds for stereotyping, nor do I claim the making of molds by successive impressions; nor do I claim simply the use of furniture, nor the determination of the thickness of the stereotype plate by means of bars or a frame placed on the mold plate.

But I claim the use or furniture of an exact and proper height for the purpose of forming a bed in and around the mold, on which to place the metallic casting frame which gauges the size, form, and level of the stereotype plate, or which shall of itself form a support on which bars are placed for the purpose of being pressed into the mold, and imbedded therein, thus taking the place of the frame.

I also claim the use of a frame placed upon a bed in and around the mold, or, in its place, the use of bars pressed upon and into the mold, substantially for the purpose and in the manner described.

I also claim the use of slips of metal or other substance for the purpose of dividing the plate into two or more pieces, used substantially in the manner described, or any other similar manner of accomplishing the same object, whether these be used in combination or separately, or whether the material used in making the stereotype plates be common type-metal, or a compound in which a principal ingredient is gutta percha, india rubber, shellac, or any other substance or composition of which stereotype plates are now or may hereafter be made.

OX YOKES—Levi Dederick, of Albany, N. Y.: I am aware that a patent has been granted to Albert Vose for a semi-revolving neck block; but my mode of fastening the block I regard as an improvement upon that invention.

Therefore I claim the flanged thimble for securing center bolts of separate vibrating neck blocks from the upper side, and thus avoid perforating the wood on the under side which rests upon the neck of the ox, as described.

COMPOSITION FOR FUEL—St. John O'Doris, of Philadelphia, Pa.: I claim the formation of an artificial fuel by the combination of street garbarge with coal dust, coal ashes, saw dust and coal tar, or other bituminous substance, substantially as set forth.

FERMENTING TUNS FOR BEER—Adolph Hammer, of Philadelphia, Pa.: I do not claim simply a large vessel or tun for fermenting malt liquors, as vessels of various forms and sizes have been used heretofore, for other purposes.

But I claim the application and use of the adjustable cover, B, and the conduit pipe, C, constructed and arranged substantially as described and illustrated, in combination with the tun, A, or any other suitable vessel, substantially and for the purpose described.

FIRE PROOF IRON BUILDINGS—Emanuel Harmon, of Washington, D. C.: I do not claim the use of an air space or of a non-conducting substance for the purpose of intercepting the communication of heat between two metallic surfaces, or the surfaces of the walls of an iron building.

But I do claim the insulation of the skeleton frame-work of iron buildings from the exterior and interior coverings of said frame-work, with their fastenings or attachments, by the interposition of a non-conducting substance, such as plaster of Paris, soap stone or felt, in combination with an air space, or sheets of plaster of Paris, felt, or other incombustible non-conducting substance, in the manner and for the purposes set forth.

Second, I claim the above insulation in combination with the entire filling up of the space between the said exterior and interior coverings or surfaces, with any incombustible non-conducting substance, in the manner and for the purpose set forth.

HANGING THE KNIFE IN PLANING MACHINES—M. G. Hubbard, of New York City: I claim hanging the first knife on arms projecting from the stock horizontally, or nearly so, by which it is attached to the frame, substantially in the manner and for the purpose set forth.

CULTIVATORS—John Imel, of Liberty, Ind.: I claim the curved and adjustable guard or fender, hinged as described to a tongue supported upon running gear.

MACHINES FOR CUTTING AND TURNING SLATE—Asa Keyes, of Brattleboro, Vt.: I do not claim the cutting of roofing slate by means of a revolving knife and level rest, after the manner of shears, as patented by James Carter, of Delabole, in the county of Cornwall, England, in the year eighteen hundred and forty-five.

But I claim the combination of the cutters or hammers, c', on the fly-wheel, A, with the circular dog, D, in direct contact with which each successive portion of the slate rests to receive the blows of the cutter, while the slate is fed up by a carriage on the ways, F, said combination operating substantially as and for the purpose set forth and described.

BLOWING BLASTS, &c.—P. W. Mackenzie, of Jersey City, N. J.: I claim the use of the drum and blower, having centers eccentric to each other, the said blower being internal of the drum, and propelled by it, substantially in mode of construction and for the purposes set forth.

I also claim as a part of my invention the cylindrical adjustable packing for the arms of the blower, in combination with the drum and blower arms, substantially in mode of construction and operation and for the purposes set forth.

STEAM RAIL-ROAD CAR BRAKES—Henry Miller, of New York City: I claim, first, the arrangement of the cylinder, the pipe, D, and the branch-pipe, d, of each car, substantially as described, to wit: the pipe, D, inclining downwards from each end of the car, and the pipe, d, inclining downwards from the lowest point of the cylinder towards the point of junction with the said pipes, so that the condensed water may all run from the pipes and cylinder, and escape therefrom or be conveyed into a suitable receptacle, provided with proper means of escape, as set forth.

Second, Encasing the piston rod with a flexible tube, which is attached at one end to the rod, and at the other to the cylinder head, and is kept extended so as not to be injured by the working of the rod, by means of a spiral spring surrounding the rod, which said spring assists in return ing the piston and freeing the brakes, after the steam or compressed air is shut off, substantially as described.

FRUIT DRYERS—Russell S. Morse, of East Dixfield, Me.: I claim constructing a portable fruit dryer of a series of trays and a protecting roof, united to each other by hinging bars, substantially as set forth.

ELEVATING SCAFFOLDS—F. Rudolph, of New York, N. Y.: What I claim is the arrangement and combination of the center pole, A, and the scaffold, C, the former usually being placed within, and the latter about, the structure to be built, each of which may be elevated as desired, and the whole being constructed substantially in the manner described.

RAKES—Emile Sirret, of Buffalo, N. Y.: I am aware that the treadle, E is not new, and therefore I make no claim to it; but what I do claim, is,

First, A revolving rake, having the head made in two sections, and arranged and operating essentially as described.

Second, In combination with the same, the employment and arrangement of the jointed forked treadle, F G, substantially as and for the purpose set forth.

HANGING A PATH-FINDING SAW—John A. Taplin, of Fishkill, New York: I claim the pendulum block to support and guide the upper end of the saw, substantially as described.

COMPOSITIONS FOR DRESSING LEATHER—Cuno Werner, of Philadelphia, Penn.: I claim as new the use or employment of a compound for dressing leather, composed of a saturated infusion of oak bark (or other substance affording tannin) train or fish oil, rosin, hog's lard and creosote, compounded and combined as set forth, and for the purposes specified.

CAST IRON PAVEMENTS—Chapman Warner, of New York, N. Y.: I claim the described bars, connected, sustained and bound together by the keys or cross pieces, substantially in the manner and for the purposes set forth.

HATS—Wm. F. Warburton, of Philadelphia, Penn.: I do not confine myself to the precise form of corrugations described and represented, as they may, doubtless, be varied in shape and yet accomplish the ends desired. But I claim forming the rims of hats with corrugations, channels or grooves, or other ridges of the form described, or other form substantially thereto, for imparting strength, softness and elasticity to the rim, with less weight of felt or other material, and a decreased quantity of stiffening substance of which it is composed than is ordinarily employed in forming rims, the said rims being, previously or at the same time such corrugations, grooves or channels are formed, slightly raised or arched at the front and back parts, immediately next the body or crown of the hat, and depressed or slightly curved downward at the sides, or not, as fancy or taste may dictata, to give them the proper brace or set, as set forth.

CUTTING IRREGULAR FORMS—Warren Wadleigh, of Hill, N. H.: I claim, first, A reciprocating cutter with one or two edges, guided or governed by one or more patterns, so as to cut the rough blocks or pieces of wood or other material into the form required, substantially as described.

Second, The wedges, n n, or their equivalent, so constructed and arranged as to enable the operater to vary the distance between the pattern and cutter bar while the machine is in motion, for the purposes set forth, substantially as described.

MACHINES FOR MAKING WEAVERS' HARNESS—J. S. Winsor, of Providence, R. I.: I claim in the within-described machine the mode of operation, substantially as specified, by means of which each twine is formed in a loop, and the spool or its equivalent carrying such twine, carried through such loop to form a knot, and then the spool or its equivalent which carries the other twine passed through such loop, that the twine thus carried through may be griped therein when the knot is drawn tight, thus forming the eye of two twines with a knot in each, griping the other twine, as herein set forth.

And I also claim the mode of operation substantially as herein described, for determining the size of the eyes, by closing the knots on the two fingers, or their equivalents, whereby the knots are closed at the proper place on each twine, the two sides of each eye made of equal length, and any desired number of eyes of the same size, as set forth.

And I also claim, in combination with the fingers or their equivalents, on which the knots are closed, the discharger, or any equivalent therefor, by means of which the knots are discharged from the said fingers as they are drawn tight, as set forth.

And I also claim the combination with the mechanism for forming the knots, substantially as herein described, the employment of pincers, substantially as described, or any equivalent therefor, for holding the twines tight after the knots at each end of the eye have been closed, and during the operation of drawing the twines tight around the bands, as set forth.

And I also claim the mode of operation substantially as described, by means of which the twines are wrapped around the bands in succession and formed each into a loop, through which the spool or its equivalent for carrying the twines is passed to effect the tie, substantially as described.

And I also claim the mode of operation substantially as described, for forming what is termed the leese of the harness, by reversing the motion of the spools or their equivalents for carrying the twines, thus carrying the twines alternately on opposite sides of one band, as set forth.

And I also claim the method, substantially as herein described, of mounting the heddles as they are formed on the slats or rods, by suspending the said slats or rods above the machine, and attaching the bands, to which the heddles are tied in the process of formation, to a sliding bar or its equivalent, which is elevated as the heddles are formed, as set forth.

And finally, I claim the method of marking every nineteenth (or any other number) of heddles, by means of the marker, receiving motion in the manner substantially as specified, or by equivalent means.

SAWING MACHINE—Lysander Wright, of Newark, N. J.: I claim the two pulleys varying in size for the purpose set forth.

I also claim the revolving guide-block for the purposes set forth.

I also claim the arrangement and combination of the guides, crosshead holdfast and guide-block, shoe and screw, for the purpose of raising and lowering, and to give the rake, all of which substantially as set forth.

BURGLARS' ALARM—Daniel Wells, of Philadelphia, Pa.: I am well aware that the giving of alarms from the opening of doors is old and well known. I do not claim that exclusively.

But I claim the radial arm, d, with its projection, e, and the latch, a, with its notched recess, x, for effecting the disengagement of the spring-bolt on the movement of a door or its equivalent, in the manner described and for the purpose specified.

PRESS FOR PRINTING DIFFERENT COLORS—Stephen Brown, of Syracuse, N. Y.: I claim, first, the employment or use of a series of platens, p p p, (two or more) arranged as herein shown or in an equivalent way, so that the form or type on said platens may be inked simultaneously with separate and distinct colors, and operated or pressed simultaneously against the sheet, as set forth.

Second, I claim the arrangement herein shown of the cam, C, bent levers, K K, and arms, F F, which are connected to the bent levers for the purpose of operating the movable bed or platen, N, ink rollers, I, and fingers, R.

Third, I claim operating the fingers, R, by means of the screw, t, and rolling bar, T, whereby the fingers are made to convey the sheet to and from the platens, P, as herein described.

ARRANGEMENT OF DOUBLE-PISTON STEAM ENGINES—Warren S. Burgess, of Norristown, Penn.: I claim having two pistons, B B, placed within one cylinder, A, the pistons being attached to rods, C C, or their equivalent, so as to be a requisite distance apart, and attaching the connecting rod, E, directly to the rods, C, or their equivalent, substantially as herein shown, and for the purpose set forth.

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CHUCK FOR TURNING ELLIPTICAL CYLINDERS—Pulaski S. Cahoon and S. F. Ross, of La Grange, Mo.: We claim, first, The arranging of the ring, f', upon the sliding standard, F, and combining it with the lathe spindle, B, by means of the slide, E, substantially as and for the purpose set forth.

Second, Arranging the slide between the face-plate and the standard, F, instead of attaching it to a ring situated back of the face-plate, substantially as and for the purpose set forth.

GRINDING MILLS—Amory Felton, of Troy, N. Y.: I do not claim separately either of the parts herein described.

But I do claim the combination of the cylinder, B, concave, C, cap, H, and reciprocating teeth or fingers, e, the concave and cap being provided with spiral flanches, c, the above parts being constructed and arranged substantially as shown, and for the purpose as set forth.

PAINT BRUSH—Wm. Hicks, of Steubenville, Ohio: I claim, firstly, the arrangement, substantially as herein shown and described, of the brush-holder, b, with the reservoir handle, A, regulating valve, g, and branch or feed, f, conveying the color on to the top of the brush, essentially as specified.

Secondly, In combination with the self-feeding paint brush or pencil, the adjustable guide-roller, k, to facilitate the run of the brush in its desired course, and at a speed corresponding with a free flow and a continuous supply of color to and on the brush, and serving to form a rest at various angles of operation or hold of the brush; the said roller being arranged to run on the outside of the lateral spread or splay of the brush, and on the off side of it, as and for the purposes set forth.

PRINTING PRESS—Sidney Kelsey, of Erie, Pa.: I claim, first, feeding or conveying the sheets to the form by having the carriage, H, formed of two parts, g h, and arranged substantially as shown, so that the edge of the sheet may be grasped between the two parts of the carriage as it is moved between the platen and bed.

Second, I claim the fly, W, operated as shown, viz: by means of the pulley, C', attached to the carriage, H, by a cord, c', said pulley being hung on the shaft, X, which is provided with a spring, a', as set forth.

FOLDING LIFE BOATS—C. Locher, of New York, N. Y.: I do not claim hinging or pivoting the ribs to the keel, or to a central frame, so as to be folded or extended at pleasure.

But I claim connecting the folding ribs by means of a chain or chains being applied, substantially as described, to spread all the ribs at once, and when spread to serve the purpose of keeping all in place.

PRINTING PRESS—James Lewis, of Prattsville, N. Y.: I claim, first, the employment or use of the fly, D, constructed, arranged and operating in the manner and for the purpose set forth.

Second, I claim the combination of the fly, D, cylinder, B, and bed, C, when the above parts are arranged, operated as shown and described.

PADLOCKS—Thomas Slaight, of Newark, N. J.: I do not claim the tumblers, E, separately, nor the guard-bar, for they have been previously used; but I do claim,

First, The employment or use of a dog, C, constructed as shown, or in an equivalent way, so that the pressure of the shackle upon it, when the end of said shackle is forced into the case, will throw the dog into the recess or notch in the shackle, without the aid of a spring or any other device.

Second, I claim the combination of the dog, C, guard-bar, D, with the stud, j, upon it, and slotted tumblers, E, arranged as shown, and operating in the manner as set forth.

CRANK CONNECTION IN DOUBLE-PISTON STEAM ENGINES—John Smith, of Cincinnati, Ohio: I do not claim the employment of two pistons within a cylinder, separately.

But I claim the employment or use of two pistons, A B, connected by a cross-head or plate, C, which has a slot, D, through it, in which the crank, E, of the shaft, F, fits, whereby the pistons are directly connected to the crank, and a rotary motion given the crank-shaft, without the intervention of the usual piston and connecting rods, as shown.

BRACE FOR PIANO FRAMES—Dwight Gibbons, of Rochester, N. Y., assignor to Frederick Starr, of same place: I do not claim any method of bracing from the suspended point of the plate, F, to the iron frame, rest-plank, or back, knowing them to be in use.

But I claim the making use of a diagonal brace, extending above the plate and strings, operating in the manner and for the purpose substantially as set forth.

REPEATING FIRE ARMS—Joshua Stevens, of Chicopee Falls, Mass., assignor to the Massachusetts Arms Company: I claim so combining the trigger, the hammer, and the mechanism for rotating the cylinder, that by a simple pull on and during the back movement of the trigger, the hammer shall be discharged or set free from the trigger (so as to fall on the nipple when the touch-hole of one charge-chamber of the cylinder is in connection with it) and the cylinder subsequently rotated so as to bring up to the percussion nipple or its equivalent, the touch-hole of the next chamber of the series thereof. And in combination with the mechanism for turning the cylinder and that for locking and unlocking it, I claim a cam pin (projecting from the hammer) or its equivalent for preventing the cylinder from being unlocked, or for locking it, in case the movement of the trigger is so rapid as to render the cylinder liable to be rotated before the charge fired by the action of the hammer has left the chamber.

I do not claim jointing an impelling pawl directly to the lower part of a percussion hammer, so that by the reciprocating rotary movement of the hammer, the said pawl may be moved against and drawn away from the ratchet of the revolving cylinder.

Nor do I claim jointing a lever directly to the trigger, so that by the movement of the trigger such lever may be moved against one tooth of the ratchet, or drawn back over the next succeeding tooth and against a spring acting upon the rear end of the lever.

But I claim the described and represented arrangement and combination of the trigger and its spring, a rotary tumbler separate from the trigger and moving on a separate pin or fulcrum, a turning mechanism of the cylinder and the locking and unlocking mechanism thereof, by which arrangement and combination, during and by a back and forward movement of the trigger, the cylinder will be locked or unlocked, and have an intermittent rotary motion imparted to it, and the cock or percussion hammer be actuated essentially as specified.

I also claim the bearer, x, or its equivalent, in combination with the turning lever, L, and the part or tumbler to which is is connected or jointed, and by which motion is imparted to the turning lever as specified, this combination obtaining an important advantage, as explained.

RE-ISSUES.

MOWING MACHINES AND HARVESTERS—John H. Manny, of Rockford, Ill., dated originally Sept. 23, 1851: I claim the combination of the bar that supports the cutter with a diagonal lever held down at its inner end, substantially as described, and resting upon the axle of the carriage as a fulcrum, or upon some other equivalent support that will perform the function of a fulcrum, whereby the outer end of the cutter bar is held up, substantially as set forth.

ARRANGEMENT OF JOINTS FOR ATTACHING TRUCKS TO HARVESTER FRAMES—John H. Manny, of Rockford, Ill., dated originally Sept. 23, 1851: I claim the arrangement of a flexible joint in the line of the cutter, or thereabout, in such manner that the machine will bend freely up and down along this line to keep the cutter as nearly as may be, at a uniform hight from the surface of smooth or undulating ground.

ARRANGEMENTS FOR CONTROLLING HARVESTER CUTTERS—John H. Manny, of Rockford, Ill, dated originally Sept. 23, 1851: I claim controlling the flexure of the machine, hinged so that it will bend in the line of the front edge of the cutting apparatus, or thereabouts, by means of an adjustable stop and arm or their equivalent, in such manner that the cutter will be kept at the proper elevation on smooth ground, will be free to rise and fall to conform to a gently undulating surface, and will be restrained from descending into furrows or other sudden and narrow depressions, while it will be free to rise to any extent required for passing over boulders, stumps, or other like protuberances in its path, substantially as specified.

HARVESTERS HAVING A LEADING TRUCK—John H. Manny, of Rockford, Ill., dated originally Sept, 23, 1851: I claim the leading carriage to carry the driver in a position in advance of the cutter, where he can readily see obstructions, and observe the character of the surface of the ground in time to adjust the machine properly for operating upon any given part of its path before reaching the same, in combination with a cutter carriage joined to the leading carriage by a hinged bar, or other flexible connection, the cutter carrirge being provided with an adjusting lever or arm, and extending forward to the leading carriage where it can be conveniently reached by the driver to enable him to raise and lower the cutter, as required.

FRAME CONSTUCTION OF TRIANGULAR HARVESTERS—John H. Manny, of Rockford, Ill., dated originally Sept. 23, 1851: I claim constructing the frame which supports the cutting apparatus of a triangular or trapezoidal form, one of its acute angles being at the end of the finger bar next the standing grain, so that the frame will not bear against the standing grain back of the finger bar, and will permit the wheel which supports the outer end of the platform to be placed a considerable distance within the end of the finger bar, yet sufficiently far from the frame and at the same time not too far back of the center of weight to poise or balance the machine properly.

HARVESTERS—John H. Manny, of Rockford. Ill., antedated Sept. 24, 1852, dated originally Nov. 23, 1852: I claim, first, the arrangement of the track scraper at the outer end of the machine, and the wheel or wheels which support the opposite end of the machine, whether driving wheels or not, in such relative position that the wheels while the machine is cutting one swath, will run in the track cleared by the former, while the machine was cutting a previous swath, as set forth, but in this patent I make no claim to the track scraper.

Second, the projection, 7, on the under side of the upper bars, 5, of the top, m, of the finger in combination with the chamfer or recess on the lower inside corners of said bars, to counteract the tendency of wire grass, and other fibrous obstructions to pass in between the cutter bar, e', and the sides of the recess in the upper part of the finger in which it is guided.

Third, forming the guard finger, o, of two parts, m and n, interlocked at the point, substantially as set forth, so that grass cannot lodge in the joint and form an impediment to its entering between the stalks of the standing grain.

Fourth, in combination with the raker's stand or seat, I claim the removable platform or raking bottom constructed with a wing that extends from the outer end of the cutter over the frame, and holds up the butt of the straws above the stubble which otherwise would obstruct the discharge of the grain from the platform, substantially as set forth.

CUTTER FINGERS OF HARVESTERS—John H. Manny, of Rockford. Ill., dated originally April 19, 1852, ante-dated Dec. 9, 1852: I claim constructing the lower part of the finger, or the upper, or both, with a recess on either side in front of the finger bar, whereby the clogging of the cutting apparatus is effectually prevented, as described.

I also claim constructing the finger so that the sides of its upper half will overhang those of its lower half, the cutter playing between the two, substantially as set forth.

I also claim bevelling the upper corners of the shank of the lower part of the finger so as to form a cutting edge, e, thereon, in the position and for the purpose described.

DESIGNS

PARLOR STOVES—James Wager, Volney Richmond, and Harvey Smith, of Troy, N. Y.

COOKING STOVE—Garretson Smith, Henry Brown, and Joseph A. Read, (assignors to I. G. Abbott, and A. Lawrence,) of Philadelphia, Pa.

PARLOR COOK STOVES—Garretson Smith, Henry Brown and Joseph A. Read, (assignors to I. G. Abbott and A Lawrence,) of Philadelphia., Pa.

STOVES—Garretson Smith, Henry Brown, and Julius Holzer, (assignors to I. G. Abbott, and A. Lawrence,) of Philadelphia, Pa,

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UNITED STATES PATENT OFFICE,
Washington, Dec. 15, 1854.

ON THE PETITION of William Perrin, of Lowell, Mass., praying for the extension of a patent granted to him on the 24th day of March, 1841, for an improvement in "machine for cutting square joint dovetails," for seven years from the expiration of said patent, which takes place on the 24th day of March, 1855.

It is ordered that the said petition be heard at the Patent Office, on Monday, the 12th of March next, at 12 o'clock. M.; and all persons are notified to appear and show cause, if any they have, why said petition ought not to be granted.

Persons opposing the extension are required to file in the Patent Office their objections, specially set forth in writing, at least twenty days before the day of hearing; all testimony filed by either party to be used at the said hearing must be taken and transmitted in accordance with the rules of the office, which will be furnished on application.

The testimony in the case will be closed on the 2nd of March; depositions and other papers relied on as testimony, must be in the office on or before the morning of that day, the arguments, if any, within ten days thereafter.

Ordered, also, that this notice be published in the Union, Intelligencer, and Evening Star, Washington, D. C.: Pennsylvanian, Philadelphia, Pa.: Scientific American, New York, and Patriot. Concord. N. H., once a week for three successive weeks previous to the 12th day of March next, the day of hearing.

CHARLES MASON,
Commissioner of Patents.

P. S.—Editors of the above papers will please copy, and send their bills to the Patent Office, with a paper containing this notice. 17 3

UNITED STATES PATENT OFFICE,
Washington, December 9. 1854.

ON THE PETITION of Moses and Samuel Pennock, of Kennett Square, Pennsylvania, praying for the extension of a patent granted to them on the 12th day of March, 1841, for an improvement in "seed drills," for seven years from the expiration of said patent, which takes place on the 12th day of March, 1855:

It is ordered that the said petition be heard at the Patent Office on Monday the 26th day of February next, at 12 o'clock, M.; and all persons are notified to appear and show cause, if any they have, why said petition ought not to be granted.

Persons opposing the extension are required to file in the Patent Office their objections, specially set forth in writing, at least twenty days before the day of hearing; all testimony filed by either party to be used at the said hearing must be taken and transmitted in accordance with the rules of the office, which will be furnished on application.

The testimony in the case will be closed on the 16th day of February, 1855; depositions and other papers relied upon as testimony must be filed in the office on or before the morning of that day; the arguments, if any, within ten days thereafter.

Ordered, also, that this notice be published in the Union, Intelligencer, and Evening Star, Washington, D. C.; Pennsylvanian, Philadelphia, Penn,; Scientific American, New York; and Enquirer, Cincinnati, Ohio, once a week for three successive weeks previous to the 26th day of February next, the day of hearing.

CHARLES MASON,
Commissioner of Patents.

P. S. Editors of the above papers will please copy and send their bills to the Patent Office, with a paper containing this notice. 17 3

REMOVAL.—McALLISTER & BROTHER, Opticians, Philadelphia, have removed from the old stand, (established in 1796,) 48 Chesnut street, to the new and spacious building which they have recently erected 194 Chesnut st. (sign of Franklin's Head,) below Eighth street. With increased facilities they will continue to conduct the Optical, Philosophical, and Mathematical Instrument Business in all branches.

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Bush. they grind in 10 h	50	150	225	350
Horse power required	1 to 4	6 to 12	12 to 18	50 to 30
Revolutions per minute	500to700	500to800	400to700	400to550
Size of pulleys	9 in.	15 in.	18 in.	24 in.
Width of do.	5 in.	8 in.	10 in.	12 in.
Hight of center of pulley from the floor	9 in.	10 in.	11 in.	14 in.
Weight of Mills	500 lbs.	1400 lbs.	1800 lbs.	300 lbs.
Hight of do. with hopper	2 ft. 9 in	2 ft. 9 in.	4 feet.	5 fe3t.

The above sizes, with the latest improvements, to be had of EDWARD HARRISON, sole manufacturer, New Haven, Conn. 12 7*

MACHINE GROUND CIRCULAR SAWS—(Patent applied for.) Mill men would do well to try these saws, are perfectly free from thin or thick places, can be used thinner and with less sett, and run faster than any other hitherto made. All diameters and thicknesses warranted perfectly true. HENSHAW & CLEMSON, 31 Exchange street, Boston. 11 8*

DICTIONARY OF TECHNICAL TERMS—In French, English, and German. A new work presenting all the terms used in science and art. The terms are first given in French, then in English and German. It is the first of three volumes arranged differently, and is a very useful work. For sale at this office, price $1,31

THE FRENCH EXHIBITION—Parties who have applied for space in the French Palace of Industry, and who do not intend to be present at the Exhibition, are recommended by the undersigned to arrange with Messrs. Gardissal & Co., No. 29 Boulevard St. Martin, Paris, who are prepared to put upon Exhibition, attend, and effect sales of articles intrusted to their care. It is a responsible concern. S. H. WALES, State Commissioner, Scientific American Office.

YOU CAN GET THE NEW YORK WEEKLY SUN three months for 25 cts.; six months 50 cts.; one year, 75 cents, 16 months, $1. Or three copies one year, $2; eight copies $5; twenty-five copies $15; and by canvassing for subscribers you may get one of the five cash prizes $50, $20, $15, $10, and $5—for the largest lists sent in before 3rd Feb.—Specimen copies gratis.—Send letters and money (post-paid) to MOSESS. BEACH, Sun Office, New York. 6

BUFFALO MACHINERY DEPOT—Terrace St. and 36 Lloyd st., Buffalo; J. W. HOOKER, Proprietor, H. C. Brown, Superintendant, offers for sale Machinists' tools of all kinds: Engine Lathes, Planers, Drills, Chucks, Boring Mills; also machinery of all kinds on hand or furnished to order. 7tf

CIRCULAR SAW MILLS—The undersigned manufacture for sale Child's Patent Circular Saw Mills for cutting lumber from logs of any size, with 40 and 24 inch, to 48 and 54 inch saws. Also single mills with 36 inch to 72 inch saw. These machines are warranted capable of cutting more lumber in a given time than any other saw mills in use. H. WELLS & CO., Florence, Hampshire Co, Mass. 17 4*

STAVE AND BARREL MACHINERY—Hutchinson's Patent. This machinery which received the highest award at the Crystal Palace, is now in daily operation there. Staves, heading, &c., prepared by it are worth to the cooper 20 to 40 per cent. more than when finished in any other way. Special attention is invited to the improved Stave Jointer. Apply to C. B. HUTCHINSON & CO., Crystal Palace, or Auburn, N. Y. 13 tf

PATENT DRIERS—Zinc Driers, Graining Colors, Stove Polish, Gold Size, &c., &c., 114 John street, New York. QUARTERMAN & SON, Manufacturers. 1 6m

NEW HAVEN MANUFACTURING COMPANY Machinists' Tools. Iron planers and Engine Lathes of all sizes. Hand Lathes, Gear Cutters, Drills, Bolt Cutters, Chucks, &c., on hand and being built by the quantity, which enables us to sell low. For cuts giving full description and prices, address New Haven Manufacturing Co., New Haven, Conn. 13 tf

HARRISON'S GRAIN MILLS—Latest Patent.—$1000 reward offered by the patentee for their equal. A supply constantly on hand. Liberal Commissions paid to agents. For further information address New Haven Manufacturing Co., New Haven, Conn., or to S. C. HILLS, our agent, 12 Platt Street, New York. 13 tf

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NORCROSS ROTARY PLANING MACHINE—The Supreme Court of the U.S., at the Term of 1853 and 1854, having decided that the patent granted to Nicholas G. Norcross, of date Feb. 12, 1850, for a Rotary Planing Machine for Planing Boards and Planks, is not an infringemet of the Woodworth Patent.

Rights to use N. G. Norcrois's patented machine can be purchased on application to N. G. NORCROSS, 208 Broadway, New York.

Office for sale of rights at 208 Broadway, New York; Boston, 27 State street, and Lowell, Mass. 16 6m

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MACHINISTS TOOLS—SHRIVER & BROS., Cumberland, Md., (on B. and O. Railroad, midway between Baltimore and the Ohio River,) manufacturers of Lathes, Iron Planers, Drills and other machinists tools 50 6m*

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Science and Art.

Color and Dress.

RED DRAPERY—Rose-red cannot be put in contact with the rosiest complexions without causing them to loose some of their freshness. Dark red is less objectionable for certain complexions than rose-red, because, being higher than this latter, it tends to impart whiteness to them in consequence of contrast of tone.

GREEN DRAPERY—A delicate green is, on the contrary, favorable to all fair complexions which are deficient in rose, and which may have more imparted to them without inconvenience; but it is not so favorable to complexions that are more red than rosy, nor to those that have a tint of orange mixed with brown, because the red they add to this tint will be of a brick-red hue. In the latter case a dark green will be less objectionable than a delicate green.

YELLOW DRAPERY—Yellow imparts violet to a fair skin, and in this view it is less favorable than a delicate green. To those complexions which are more yellow than orange it imparts white; but this combination is very dull and heavy for a fair complexion. When the skin is tinted more with orange than yellow, we can make it roseate by neutralizing the yellow; it produces this effect upon the black-haired type, and it is thus that it suits brunettes.

VIOLET DRAPERIES—Violet, the complementary of yellow, produces contrary effects; thus, it imparts some greenish yellow to fair complexions; it augments the yellow tint of yellow and orange skins. The little blue there may be in a complexion it makes green. Violet, then, is one of the least favorable to the skin, at least when it is not sufficiently deep to whiten it by contrast of tone.

BLUE DRAPERY—Blue imparts orange,—which is susceptible of allying itself favorable to white and the light flesh tints of fair complexions, which have already a more or less determined tint of this color. Blue is, then, suitable to most blondes, and in this case justifies its reputation. It will not suit brunettes, since they have already too much of orange. Orange is too brilliant to be elegant; it makes fair complexions blue, whitens those which have an orange tint, and gives a green hue to those of a yellow tint.

WHITE DRAPERY—Drapery of a lusterless white, such as cambric muslin, assorts well with a fresh complexion, of which it relieves the rose color; but it is unsuitable to complexions which have a disagreeable tint, because white always exalts all colors by raising their tone; consequently, it is unsuitable to those skins which, without having this disagreeable tint, very nearly approach it. Very light white draperies, such as muslin, plaited or point lace, has an entirely different aspect.

BLACK DRAPERY—Black draperies, lowering the tone of the colors with which they are in juxtaposition, whiten the skin; but if the vermillion or rosy parts are to a certain point distant from the drapery, it will follow that, although lowered in tone, they appear relatively to the white parts of the skin, contiguous to this same drapery, redder than if the contiguity to the black did not exist.—[Harmony of Colors, by M. E. Chrevreul.

[The above remarks of this distinguished French chemist must be taken with some caution, because the question of complexion is a very puzzling one. The lesson, however, which he desires to impart is a good one, that is, the study of colors in dress in relation to complexion. Some of the strangest and most disagreeable results are produced by the choice of fashionable colored bonnets and their trimmings. Every person should study the effect of color upon complexion, so that the coloring of nature and art may be in harmony, not at loggerheads, as they too often are.

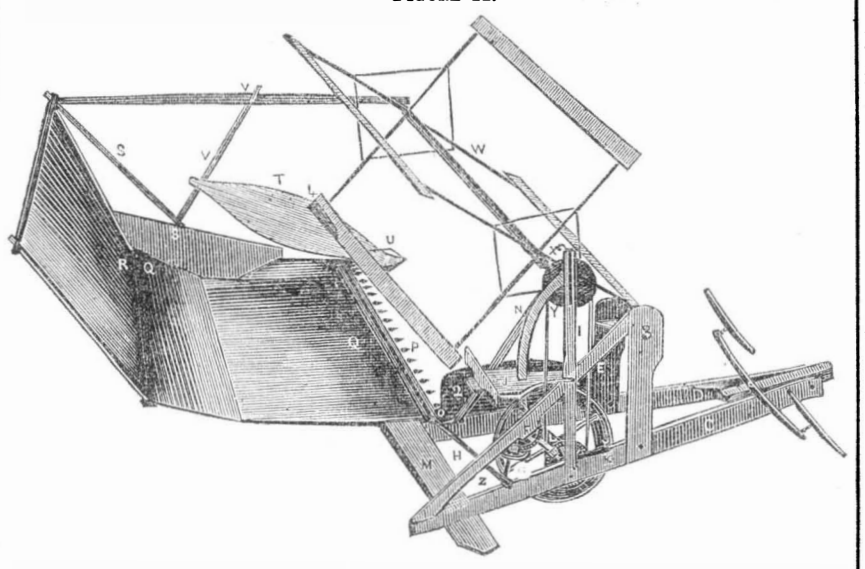
An Immense Loss.

It is estimated that the loss on sour flour and damaged corn in the United States equals the sum of $5,000,000 annually.—Exchange.

History of Reaping Machines.—No. 14.

From 1836 when Moore & Hascall's patent—illustrated by figure 40—was issued, until 1845, when McCormick's second patent was granted fifteen patents were issued for improvements in reaping machines. As none of these require a particular description, we will give the names of the patentees, and the date of their patents. D. Lewis, Jr., Bern, N. Y., April 14, 1838, claim, *Franklin Journal*, new series, Vol. 23, page 179; Ira Wheeler, Salem, N. H., May 30, 1838, claim, *Franklin Journal*, new series, Vol. 23, page 242; Wm. Brittain and John Silvers, of New Hope, Pa., Nov. 25, 1838, claim, *Franklin Journal*, Vol. 4, third series, page 192; Jonathan Reed, of New York, March 12, 1842, claim, *Franklin Journal*, Vol. 12, third series, page 117; C. Brown and F. S. Crans, of Barton, N. Y., April 6, 1842, claim, *Franklin Journal*, Vol. 12, third series, page 390; Jesse Reeder, of Alton, Ill., January 20, 1843, claim, *Patent Office Report*, same year; Jacob Peck, of Oakland, Pa., August 28, 1844, claim, *Patent Office Report*, 1846; George Easterly, of Heart Prairie, Wis., Oct. 22, 1844, claim, *Franklin Journal*, Vol. 9, third series, page 385; Wm. F. Ketchum, Buffalo, N. Y., Nov. 18, 1844, claim, *Franklin Journal*, Vol. 10, third series, page 18.

FIGURE 41.



Mr. Ketchum has since become distinguished as an inventor and improver of reaping machines, and we will have more to say about him after this. On the 31st of January, 1845, a second patent was granted to Cyrus McCormick, then living in Virginia, now in Chicago, Ill., which is illustrated by figures 41 and 42.

FIG. 42.

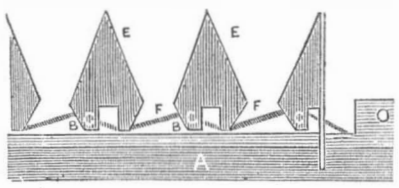


Figure 41 is a perspective view of the reaper. The driver has a seat between the uprights, 3. C is the outside bearer; D the inside one. The whiffletrees are attached to the forward ends of the bearers. Y is the band; I is the reel post; K is the shipper for putting the machine in or out of gear; L is the master cog wheel and pinion; F is the wheel brace, bevel wheel, and crank pinion; G is the crank and fly-wheel; H is the driver or connecting rod; Z is the connection between the hand and finger beam; M is the finger beam; J is the raker's seat; N is the brace to the frame; 2 is the wheel board for turning the grain into the machine; O is the connection between the driver and sickle; P is the fingers and sickle—being the cutting apparatus; Q is the platform for receiving and holding the wheat; R is the canvas; S S are the side board and brace; V V are the reel bearer and brace; T is the separator board; U is the dividing iron; W is the reel; 4 is the blocks on the reel board; X Y the reel pulley.

The accompanying engraving, figure 42, represents, on an enlarged scale, an improvement relating to the cutting parts; it consists of a combination of the shoulder, C, or back angle of the "fingers," E (as patented and used in the machine) with a slightly indented and zig-zag edged sickle; by which arrangement, as seen by the figure at E F, the angle in the sickle edge is rendered so obtuse that it will, along with the finger for holding the grain to the sickle, cut the grain, &c., in the best manner, at the sloping angle of least resistance.

This patent embraces five claims, and has been the subject of severe litigation, and in the trial for its infringement in the U. S. Circuit Court, at Albany, N. Y., Oct. 25, 1854, Seymour and Morgan, defendants, a verdict of $7,750 was awarded the plaintiffs.

Apparatus for Preserving Telegraphic Apparatus.

M. Becquerel has presented to the Academy an apparatus invented by M. Barthelemy Bianchi, intended to preserve telegraphic apparatus from the disturbing influence of atmospheric electricity.

It consists of a metallic sphere, traversed by the circuit wire, and kept in the center of another glass sphere, formed of two hemispheres united by a broad copper ring, armed at its inside with equi-distant points directed towards the center of the metallic sphere, and approaching within a short distance of its surface. The two hemispheres end in sockets, into which the connecting wire passes aud is cemented. The lower part of the copper ring is provided with a metallic stop-cock, which permits a vacuum to be made in the apparatus, and kept in it if it be thought necessary. This stop-cock has a screw-thread which is to receive a metallic rod designed to put the metallic armature into direct connection with the earth, while the circuit wire, and the sphere which forms part of it, are completely insulated.

All the atmospheric electricity which comes upon the conducting wire of the telegraph is transmitted to the ground through the points with which the ring is armed.

Such an apparatus is to be erected at each station; experiment has proved to the author that when the discharge of a battery of eight jars is passed into a telegraphic conductor provided with this apparatus, the dynamic current is not affected, and all the statical electricity passes into the earth, under the influence of the points.—[Comptes Rendus l'Academie des Sciences.

Important Electrical Discovery.

M. Foucault, the distinguished scientific investigator, has long held the opinion that liquids have a conducing power of their own, and independent of all chemical decomposition; and, starting from this fact, he makes a pile or battery without metal plates, using only such chemical liquids as do not precipitate one another. Should this discovery bear the test of further investigation, a new field will be opened to students in electrical science.—[Exchange.

[We have seen the above in quite a number of our exchanges, but for the life of us we cannot make out what it means. That liquids have a conducting power of their own is well known, and not new; but the rest of the paragraph is either above or below our comprehension.

LITERARY NOTICES.

BLACKWOOD'S MAGAZINE—The December number of this veteran magazine, contains a story of the Campaign in the Crimea, written in the tent, and is a most thrilling narrative. It also contains some personal recollections of old Christopher North, by the author of "Ten Thousand a Year," and seven other articles written with the usual ability which characterizes this magazine. Published by Leonard Scott, & Co., 54 Gold street, this City. The next number will be the first of a new volume; this is a most excellent time to subscribe—only $3 per annum.

COACH MAKERS ILLUSTRATED MAGAZINE—We have received the first number of a new monthly magazine of the above title, edited by C. W. Saladee, author of the "Coach Makers Guide." It is devoted exclusively to the arts and sciences of coach making, and all its various branches, together with the latest and most approved fashions of coaches, carriages, &c., of the day. The present number is illustrated with two plates containing four figures, embracing a buggy, a sliding seat Calash, and two kinds of Rockaways. This magazine takes the place of the "Coach Makers Guide" which has heretofore been published yearly, and while it will do more good by issuing it monthly, it cannot but be more acceptable to all engaged in the business to which it is devoted. Its contents are practical and pointed. It is edited with ability, and will no doubt receive a firm support from the craft. Its price is $3 per annum. All communications must be addressed (postpaid) to Mr. Saladee, at Columbus, Ohio.

MUSIC—We are indebted to James G. Clark, one of the Osian Bards, for some very fine pieces of music of his own composition. He is a young Americam poet and musical composer of great promise, the poetry as well as the music being his own. The "Old Mountain Tree," "The Rover's Grave," and especially "The Lament of the Sailor Boy's Mother," are full of pathos and natural beauty.

FROST'S MARINE LOCOMOTIVE—Henry A. Frost, of Worcester, Mass., author of the marine locomotive, first published on page 180, Vol. 9, Scientific American, has issued a description of his invention in pamphlet form, in which he sets forth his means of crossing the Atlantic in four days.

LESLIE'S LADIES' GAZETTE—The January number of this beautiful and useful magazine is just issued by Frank Leslie, No. 6 John street, this city. It contains beautiful engravings of the latest Paris, London, and New York fashions.

Inventors, and Manufacturers

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